The Builder.

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Lambeth.—Maudslay & Field's Manufactory.

WHEN we stood on part of old Vauxhall-gardens the other day, to see the Prince of Wales lay the first stone of a new building for a School of Art there, the changes which have taken place in Lambeth since the days when Queen Elizabeth was in the habit, after taking an airing in the St. George's-fields, of looking in on the Archbishop at the ancient palace, made themselves strongly felt. At the commencement of the present century, according to some authorities, the number of houses in Lambeth parish was only 1,400, while in 1851, when the last census was taken, there were 20,520. In former days two important roadways seem to have passed through this neighbourhood,—one, the Broad Wall, and the other, the Narrow Wall; and the line of the latter is now the Belvidere-road.

Two centuries or so ago, there were several noted wells in this district: that at the Dog and Duck, in St. George's-fields, contained portions of Epsom and sea salts. On the ground lying near the Marsh were scattered residences of greater or less importance. In one of these resided Thomas Bushel, a man of great scientific attainments, who was a friend of Lord Chancellor Bacon. He obtained from Charles I. a grant to coin silver money for the purposes of the king, when the use of his Mint at the Tower was denied to the king. When Oliver Cromwell assumed the protectorate, Thomas Bushel hid himself in this house, which it seems had a turret upon it. A large garret extended the length of the premises. In this the philosopher lay hid for upwards of a year. This apartment he had hung with black. At one end was a skeleton, extended on a mattress: at the other was a low bed, on which he slept; and on the dismal hangings of the wall were depicted several emblems of mortality. At the restoration, Charles II. supported Bushel in some of his speculations. He died in 1674, eighty years of age, and was buried in the little cloisters of Westminster Abbey.

In South Lambeth, resided John Tradescant, who left his collection of curiosities to Elias Ashmole. Both are commemorated in St. Mary's Church and churchyard. Lambeth was strong in astrologers. Besides Ashmole, Simon Forman, Capt. Bubb, and Francis Moore were its inhabitants.

In what was once the marsh stood, until 1823, an old house, called Bonner's house, which was traditionally known as the residence of Bishop Bonner. Revenent, the famous engraver, for some time resided in a house in Lambeth Marsh, but removed in 1774 to a more healthy residence, "opposite the Mother Red Cap, in Tottenham Court-road," where he died. He was buried in old St. Pancras. William Curtis, the celebrated botanist, had a large piece of ground in Lambeth Marsh, where he cultivated an excellent collection of British plants.

The small cost of the land, and the advantages of water conveyance have caused the establishment along the river's margin of important manufactories. In Pedlar's Acre, to which the Charing-Cross Railway Bridge across the Thames will stretch, were established, in 1769, by Mrs. Coade, works for the making of artificial stone. The works were afterwards carried on by Messrs. Croggon & Co., who ultimately removed to the New-road. Amongst the works executed in this material are the screen for St. George's Chapel, Windsor, supporting the organ; also the statues of King Edward, Madonna and Child, and St. George and the Dragon, in the west front of the Chapel; the arms at the Trinity-house and elsewhere, and statues and ornaments for Carlton-house. We have before now spoken of the stone-ware potteries in this district. Here, too, were the celebrated Vauxhall Plate-glass works. As early as the thirteenth century, as all know, the Venetians had attained peculiar eminence in glass-making. For a long time the mirrors of Venice were held in great esteem. About the year 1670, a number of Venetian artists arrived in England, the principal of whom was named Rosetti. Under the patronage of the Duke of Buckingham, a manufactory was established by them, and carried on with great success and much profit. As has been the case with other manufactures which have been introduced into England by foreigners, improvements were made, and the firm of Dawson, Bowles, & Co. soon excelled the Venetians and other nations in blowing plate-glass. The famous Vauxhall Glass-works stood on the site of Vauxhall-square. In 1780 a difference appears to have arisen between the employers and workmen, which led to a total stoppage of the works at Vauxhall; and a descendant of Rosetti died in extreme poverty.

The pursuit of this manufacture is one of the many beneficial results from the encouragement of foreign talent by the English. It would be instructive to collect the particulars of the introduction of the numerous great branches of industry, now our own, which have sprung from this source. At Chelsea, for example,—to run across the water for a few minutes,—there was a manufactory of "Chelsea porcelain," carried on by a foreigner. Under fashionable patronage the establishment prospered, and a number of hands were employed. The original proprietor acquired a large fortune and retired from the concern: his successor, wanting his spirit and, probably, his skill, did not succeed so well, and in a few years the concern was abandoned. But on a far more extensive scale the manufacture was carried on at Derby and elsewhere. During the difficulties of the Chelsea works, the proprietors, acting on the now exploded principle that Government protection is of service, addressed the following memorial to the State authorities:—

"This manufacture in England has been carried on by great labour, and at great expense. It is, in many points, to the full as good as Dresden, and the late Duke of Orleans told Colonel York that the 'metal,' or earth, made at Chelsea, had been tried in his furnace, and found to be the best made in Europe. It is now daily improving, and already are employed at least 100 hands, of which is a nursery of 100 lads taken from the parishes and charity schools, and bred to designing and painting—arts very much wanted here, and which are of the greatest use in our silk and printed manufactures."

Specimens of the Chelsea porcelain have been much esteemed. At the sale of Queen Charlotte's effects, the examples of this china, which were very numerous, brought high prices.

In the first instance, the Chelsea china seems to have been patronized by the Duke of Cumberland, and afterwards by Sir R. Faulkner. So great was its repute, that for long it was sold by auction. As soon as a set or batch left the kiln it was disposed of in this manner, dealers and gentlefolks surrounding the doors for the purpose of bidding.

Faulkner, in his "History of Chelsea," gives the following curious note:—

"Mr. A. Stephens was told by the foreman of the Chelsea china manufactory (then in the workhouse of St. Luke's, Middlesex) that Dr. Johnson had conceived a notion that he was capable of improving on the manufacture of china. He even applied to the directors of the Chelsea China Works, and was allowed to bake his compositions in an oven in Laurence-street, Chelsea. He was accordingly accustomed to go down with his housekeeper about twice a week, and stayed the whole day, she carrying a basket of provisions with her. The doctor, who was not allowed to enter the mixing-room, had access to every other part of the house, and formed his compositions in a peculiar apartment, without being overlooked by any one. He had also free access to the ovens, and superintended the whole process; but completely failed, both as to composition and baking, for his materials gave way to the intensity of the heat, while those of the company came out of the furnace perfect and complete. The doctor retired in disgust, but not in despair, for he afterwards gave a dissertation upon it in his works; but the overseer assured Mr. Stephens, in the spring of 1814, that he was still ignorant of the method of the operation."

To return, however, to Lambeth. With the exception of the Archbishop's palace and portions of the old church, but little that is ancient remains to reward the search of the antiquary. Thousands of ill-conditioned houses have been planted on the marsh and adjoining parts, but we may now expect better doings, particularly in that large portion of the parish which forms part of the royalty of the Duchy of Cornwall, which is a portion of the patrimony of the Prince of Wales. Various improvements are already going on: a new railway-bridge will soon pass across the Thames to Pedlar's-acre: schools and churches are rising up: in parts the drainage has been improved, and the manufactories have increased in importance. Let us look more minutely into one,—the establishment of Messrs. Maudslay & Field, marine engine-makers. Little more than a century ago the site of it and miles around were little better than a swamp, the best of its productions being a few bulrushes, while on the edge of certain high lands appeared some vegetation of the willow kind. The hand and the intelligence of man have produced wonders in the comparatively useless waste.

In old times, the only living persons who would choose to resort to this district, would be some fishermen eel-catching, or at low water, in the winter time, a few Cockney sportsmen hoping perhaps to shoot some snipe, in hard weather. Sea-gulls and other scarce birds would make the only sounds which, with the exception of the distant note of the bells of the London and Westminster churches, were heard in Lambeth Marsh.

At Maudslay's, when, some little time ago, we visited it, there were, independently of clerks, between 1,300 and 1,400 workmen employed from early morning until the hours of evening. Consider that each man here engaged has on the average (as there are here few, if any, apprentices) four persons depending on him for support, there are, say 5,000 men, women, and children who are supplied with the necessaries of life as a return for their useful labours on the morsel of marsh where this manufactory is established.

This firm was, in the first instance, made by the exertions of a man who was not only the founder of his own fortune, but also that of others; one who, like the Stephensons, rose to eminence from a humble beginning. Entering what seems an ordinary dwelling-house in the Westminster-road, Lambeth, we will not stop to speak of the models of the most important of the marine steam-engines, which have been either improved or invented and patented by those engaged in the direction of this place, though they are most exquisitely formed: they move in the turning of a steam tap, and, in their miniature way, are as perfect as those ponderous works to which, from this place, we are presently guided.

In the various workshops, each superintended by a foreman of intelligence and ability, steam marine-engines are in the course of progress for various nations. At the same time that engine work on a certain scale is being executed for foreign governments, it will be seen that commissions for our own government are not wanting. Among other works we saw screws for the British ship *Victoria*: two of those screws were fashioned like the double tail of a whale, or the largest monsters of the deep in times long passed: huge masses of metal were being coated with brass or copper work by processes which require extraordinary management. These screws will be

moved by a power of 1,000 horses. We pass through workshops of great space, lofty as many churches, fitted with cranes which will lift huge weights, and convey them in a slow, but sure manner to parts of the establishment where the rough work may be fashioned and fitted with the most perfect nicety. In all directions swarms of workmen are engaged in fabricating parts of engines, which, in spite of wind and waves, enable large ships to plough the ocean. In another, by means of the cranes already mentioned and by the skill of the workmen, parts of the work, some of several tons weight, are adjusted and joined together; and in another shop of great length, the men are working at lathes, fitting and finishing the more minute portions. In other directions, immense cylinders are being polished and cut round, after they have been removed by powerful means which are completely made available for the uses of man. One machine, the invention, we are told, of Mr. Maudslay, the founder of the firm, is boring and polishing the inside of a cylinder, of such diameter that a man might almost walk upright through it. There are other engines cutting and shaving hard iron, as if it were as soft as wax. One of these, with the greatest ease and exactness, can pare away from 7 to 8 cwt. of metal in an hour. Another of these planing machines has a circular and complex movement. There are all sorts of iron planes and cutting apparatus. Iron of an inch in thickness can be cut cleanly through with great rapidity. The instrument with which it is done has a force of thirty tons. In one place three steam-hammers, of 10, 20, and 30 cwt., perform the part of the sledge hammer, which of old was the only means of executing the heaviest work. There are also rolling mills and machinery by which plates of metal of considerable thickness can be pierced for riveting. An invention for fastening the red-hot rivets is very simple and effective.

In shops provided for the purpose are copper-smiths making steam-funnels of different sizes and shapes. Some men are beating the metal into the necessary form: others are attending the blast furnaces which heat and partly weld the copper together: others are guiding the steam-hammers: cauldrons of boiling lead are at hand, and the stranger, as he wanders through those numerous places of industry becomes bewildered with the vast extent of iron-girded roofs, the seeming complication of endless masses of machinery, the lifting and moving of immense pieces of metal, the blazing of furnaces, and the clang and clatter of the different parts of the works. All the sounds of this great manufactory are, however, as nothing in comparison with that in the immense space in which the boilers are made. There is something indescribably grand in "the voices" of this place, which, at the bidding of a single man, can be raised or stilled. It was said that when steam-machinery was introduced into manufactories like this, the work of the smith would be useless: there are now, however, perhaps ten times as many smiths, who work with hammer and anvil, employed, and at better wages, as there were formerly.

The smiths' shop here is, like the other portions of the establishment, of great extent, and many sturdy arms are actively engaged. Through vaults lighted by gas, in which numbers are arranging fuel and moulding materials, is the casting-room. These arches support the first part of the building which was reared, and were necessary in consequence of the damp marshy nature of the site. Drainage has, however, of late years, dried and improved this part of Lambeth. Before entering the casting-room, it is worth while to ascend to the pattern-shop, which is on an upper story. Piles of wood are stored in places for use; and, in the long perspective of the pattern-shop, skilled workers are fashioning the models from drawings which have been prepared by the engineers. Here we noticed that the glue is melted by steam, which lessens the risk of fire; and that, throughout the whole place, pipes are laid in all directions, so that, in case of fire, water could be thrown in vast quantities. A fire brigade has been organized amongst the workmen; and, in parts, iron doors and partitions are in use, to separate portions of the works.

In the casting-room, in deep pits, the metal-founders are preparing the moulds for cylinders and other parts of the engine. Five cupolas will soon send their blazing contents into the hollow shapes provided; and the results, in due time, will be hoisted and borne away to the places through which we have passed, and finished for use. The groups of workmen, the peculiar masses of light and shadow, the mounds of black earth, and the machinery here form a most picturesque scene. Near is the boiler which works ten steam-engines of considerable power, blows the furnaces, and moves the immense machinery, that adds so much in this place to the strength of men's hands.

The firm has provided a large room, heated by gas and well lighted, in which about 200 of the men who live at a distance may eat their meals which they have brought with them, and thus save the expense of the publichouses: they have also provided an excellent reading-room, to which is attached a library, now containing nearly 900 volumes. The books in the library can either be read in the room or taken home. The papers are supplied by a very small payment from those who choose to avail themselves of this advantage.

However, we must get out into the road again, where Astley's amphitheatre takes us back slightly into the past. Nearly a century ago, one Astley, who had been brought up as a mechanic, but who had entered a cavalry regiment and much distinguished himself abroad, erected a temporary shed on this spot for the exhibition of his skill in horsemanship. His wife and he were the only performers. The idea was, however, approved of; and with great energy Astley extended his establishment, until it became one of the most popular places of amusement in the metropolis. He was a man of handsome personal appearance and great strength. Undaunted by two fires which destroyed his premises and caused him great loss, the building was each time reconstructed in a better manner than formerly. Astley is worthy of a place amongst those who by talent and some peculiar ability have raised themselves to repute. This theatre continues to flourish; but the once famous Vauxhall Gardens are now amongst the things that were. The glory of its coloured lamps, its green avenues and sham temples; the arbours where Evelyn and Pepys gossipped, where Goldsmith and Reynolds sauntered; the decorations which Hogarth designed, have passed away; and soon the site will be covered with useful buildings, destined, it may be hoped, to improve the rising generation, and aid the general advancement.

CO-OPERATIVE SOCIETIES: IRON.

THE BRITISH ASSOCIATION IN OXFORD.

THE relation between the subject of Mr. Roberts's paper mentioned in our previous notice of the proceedings of the British Association, and one which we are about to notice,—"Co-operative Societies; their Social and Politico-Economic Aspects,"—did not seem to occur to recollection at the meeting; but it will be obvious to our readers.

We have already given some attention to this subject, last referred to,—that is when discussing the question of means other than strikes, to be taken by workmen in the building trades towards improvement of their position. The paper, which was by Mr. Henry Fawcett, M.A., Fellow of Trinity Hall, Cambridge, and the author's reply to various doubters and objectors, were remarkable efforts—considered as those of one unable from the results of a melancholy accident, to read or to take notes. On a previous day, the same author had given an able paper entitled "Dr. Whewell on the Method of Political Economy," which called forth a defence from the Master of Trinity, and produced like the subsequent paper, a most interesting debate. The object of the paper on Co-operative Societies, was to bring prominently into notice the facts of the success at Leeds and Rochdale; and was similar to our own when we drew attention to one of the very societies instanced,—namely, to show there were means, one of which might be the co-operative principle, by which workmen could possibly benefit their position,—or which at least deserved the attempt, as promising success if undertaken with the same elements of management as existed in the society called the Rochdale Pioneers. It was, perhaps, unfortunate that the author of the paper appeared to base his argument upon assertions of Mr. Froude, that the condition of agricultural labourers had not advanced, since the time of the Tudors, with all the increase in the national wealth. This of course called up Mr. Edwin Chadwick, and produced an indignant denial from others. The facts adduced on one side, however, did not controvert those on the other, that there was a great contrast between the wealth of one class and the misery of another. The author would seek for a remedy, from the lessons which political economy taught, and take away the dependance of labourers or workmen upon the capital secured by others. Wages being determined by the relative rapidity of advancement of population, and of the accumulation of capital; and it being impossible to permanently raise wages by the mere desires of humane sympathy, he remarked on the widely-spread opinion amongst workmen that wages were reduced by the tyranny of the capitalist. But he said, when labourers expressed enmity towards capitalists, they should remember that so long as the labourers as a class did not save, they rendered capitalists who did not work with their hands absolutely necessary. He well said:—

> "Capital is that portion of past produce which has been saved to aid future production; capital, in fact, sustains the labourer until the results of his labour become available for consumption: if the labourer will not save, he must look for others to sustain him; and a large portion of the produce of his labour must be devoted to compensate the capitalist for his accumulation, for his risk, and for the labour of superintendence; and the greatest advance which could be made, not only in the social, but in the material condition of the labourers, is, if they would become a saving class,—in fact, that they might obtain from their own savings, all those services for which they now have to pay the capitalist so heavy a price."

It might be said, however, he continued, that the difficulty was to induce the saving. All saving involved a present sacrifice for future advantage. A sure sign of inferior education, was the absence of foresight. The poor would be naturally not provident; and, of course, saving was peculiarly difficult, where it had to be made by deprivation of some necessaries. Recognizing the obstacles, he said, we should be better able to discern the manner in which the saving could be encouraged. The first thing was to bring distinctly before the labourer the advantage of the saving. It was not surprising there should be an absence of the saving: few could accumulate 100*l.*; and those who did, could only get 50s. a year from a savings-bank, as reward for their prudence. If, however, these individuals could use the capital to support their own labour, they might be able to cease paying the capitalist the heavy price they now have to pay him. The results could not be over-estimated. The labourer would be advanced to a different social grade; the whole produce of his labour would be his own: if this could be made the reward of his prudence, the prudence would not be so rare. The tendency at present, however, was against this desired state; every year small capitalists found it harder to contend against those of larger means. It was hopeless to expect that production would again be carried on by uncombined labourers. But by combination, the labourers would take to themselves the whole of the profits now falling to the capitalists. Savings would have their mode of investment, and accumulation would be stimulated; and the same prudential habits would distinguish the working as the middle classes.

To show there was good prospect of success in this direction, the societies above mentioned were then noticed, and their operations described. Through those societies, articles were obtained free from adulteration; and by the competition, other dealers had been obliged to reduce their prices. The success was ensured by selling for ready money, and by keeping the arrangements in the hands of the workmen themselves, as opposed to the system adopted in some undertakings which had not been so successful. The Rochdale Co-operative Store, and the Leeds Co-operative Flour Mill, together, had effected transactions to the extent of more than 1,000,000*l.*, without having had to set off 10*l.* of bad debts. If the results were surprising, it was the more reason why we should seek to understand the cause of them.

In explanation of the cause, Mr. Fawcett expressed the opinion that the doctrine of the interests of the employer being identical with those of the employed, was not strictly correct. They were identical only so far as those are of buyers and sellers in other cases. The

produce of labour being divided into two shares, whereof one fell to the employer and the other to the employed, it was obvious that each party must be interested in securing to himself as large a share as possible. The conclusion that the interests were opposed as those of buyer and seller, was confirmed by the fact that every employer felt that no one of his labourers would spontaneously put forth his full energies. Labourers had to be kept to their work; and employers throughout the country, now complained that men were more careless of their masters' interests than formerly. The existence of the trades' unions was evidence that such dissatisfaction existed; and every thoughtful mind must be impressed with the opposition growing up between the classes. Many wished to revive the condition of days gone by, when the master and his servants were as one family. But you could not have an effect when its cause was gone. The attachment had its source in the protection from danger which the labourer needed, and the master never failed to extend; but the relations now were commercial; the attachment could no longer exist; and the utmost efficiency of the labour was rarely secured. And so long as the labour was forced, so to speak, from the workman, so long must the employer pay a heavy charge for the necessary watching. But in co-operation each labourer had the direct interest, both to work himself, and to see that each other did the same. Efficient inspection was thus created without expense; and there grew up a certain *esprit de corps* which never existed amongst mere hired labourers. The mental powers were called forth; whereas in the present system it would be difficult to estimate the pecuniary loss from the apathy and mental inactivity that exist. Looking at the subject thus, it was not difficult to understand the success which had attended co-operative efforts when the labourers had selected proper managers from their own body. Even in France, the societies started in 1848, had when their career was cut short, succeeded so far that they had paid off all their borrowed capital, and had funds in hand. The failures which there had been in London, only showed what would be the elements of success. An erroneous view taken in one of those cases, was that competition was to be displaced, and motives which were inapplicable, substituted. It had been for a long time supposed there was something essentially democratic in these societies: but the truth was, if any *political party* ought to rejoice in the establishment of such societies, it would be the Conservative party. "The real revolutionary element of a nation," it was very fairly said, "is a class without accumulative property, and so impoverished, that national disturbances may possibly improve their lot, but cannot leave them worse off than they were before." Mr. Fawcett concluded by reminding the section that he had carefully avoided saying anything antagonistic to capitalists. He had sought to explain a mode by which labourers might make themselves independent of others' savings,—becoming their own capitalists; whereby the class might be enriched, not at the expense of other portions of the community, but through developing habits of prudence, and by increasing the efficiency of their labour. And thus would co-operation become a great instrument, not only of social amelioration, but of national wealth: for, the facts quoted proved, that with co-operation, capital and labour both worked with maximum efficiency.

In the discussion, as we have remarked, the position that the working classes were worse off than formerly, was disputed; at least, it was said, the fact was otherwise in the manufacturing districts of the north. No one could be in a more fortunate position than a workman who earned good wages, considering the lessened price of articles, and who had no anxieties like those of the capitalist. Mr. Chadwick went so far as to add that as the small farmers were extinguished, wages of labourers were improved. An evil was that money was spent in beer that would be better devoted to the purchase of meat. Mr. Newmarch considered the *mill* at Leeds, and not the *store* at Rochdale, the fair experiment. The commission principle, which gave each workman an interest, was already in use, and the law was now favourable to everything desired. Mr. Alderman Nield and others dwelt upon the necessity of management, and on the difficulty,—especially in undertakings of varied details,—of finding the manager who was not, at same time, virtually the proprietor. The Rev. J. E. T. Rogers argued that workmen under the Tudors were worse off than now, both from the devastation of epidemics, discomfort, and the price of food. Mr. Senior, in the chair, held that the interests of employer and employed were, in the most important sense, identical.

Mr. Fawcett in reply, reiterated that they were no more identical than those of buyer and seller. Buyer and seller were both benefited by general prosperity of the country; and so were the employer and the employed by the general prosperity of trade; but in each separate bargain, the buyer tried to buy as cheaply, and the seller to sell as dearly as possible; and just in the same way, employers having work to be done, would try to get labourers to do it as cheaply as possible. The railway contractor would be as eager to secure cheap labour, as to buy cheap materials. The labourers felt there was not an identity of interest: the feeling was proved by the facts of trades' unions and strikes. Trades' unions had not been mentioned with the view of defending them, but only to show the feeling existent. As to the comparison between one age and the other, Mr. Fawcett had not said that the lowest class of labourers had been in every respect better off under the Tudors. There were epidemics then; and comforts were in cottages now that were unknown in the earlier time. All that he had affirmed was, that the wages then paid, gave the labourers more of the prime necessaries of life. This was shown by Froude; as well as, in his later editions, by Hallam. Of course, management was all important; and, truly before the societies had been tried, it might have been supposed that would have offered an insuperable difficulty. But results proved it could be got over. All joint-stock concerns were under a relative disadvantage compared with ordinary concerns; because as a general rule, energy of the manager was not so great as that of the individual owner. In co-operation there was a compensating advantage, namely, that the labourers put forth the full energies of their body and mind, having direct pecuniary interest in their work. The figures proved that the advantage more than compensates for the disadvantage. But the secret of success, indeed, in co-operation, was the good management.

We will not extend a *résumé* already too long, of these proceedings in only one of the sections, by adding our reasons for considering that these co-operative societies, and the controversial points which we have set forth, deserve impartial consideration. The arguments which were brought against the matter of the paper are quite beside the question raised, which may be said to be simply whether it is necessary to pay a large sum for management, and whether the workman is better circumstanced through not having any anxiety attendant upon that. Mr. Fawcett tries to show that, on the one hand, the difficulty has been got over; and, on the other, that the workman is elevated by being induced to take interest in the undertaking. It is singular that many large concerns in Lancashire, such as were adverted to, are carried on, and return large fortunes, without that close supervision of the actual proprietor which some of the speakers supposed; and the knowledge of this circumstance amongst the labouring classes is producing a feeling of dissatisfaction,—call it unreasonable,—or admit exceptions, and the performance of Christian duties by some masters,—which is admitted to exist, and is causing many of those masters who had formerly very liberal views, to become conservative. We do not expect that capital identified with management will be displaced; but a case is certainly made out for the extension of co-operative associations, whether that they be looked to as a resource for the workman, or that further experiment of them be viewed as means of coming sooner to a settlement of the general question—what is the value of capital and management?—which is ever and anon raised.

In the same section, a paper by Mr. John Hitchman, "On Sanitary Drainage of Towns," was announced in the journal of proceedings, but was only partly read. The object of the author, a medical man, was to show the advantage of separation of the sewage and the rainfall, respecting which he quoted a statement that the principle had never received attention. Our readers know that such an assertion is incorrect; and also, fully perceiving that the principle is one to be kept in view, as well as to be applied wherever circumstances immediately permit, as in many small towns, cases similar to those in which indeed it has been applied already,—they know that when the question as regards London came before the Government referees, difficulty was felt in determining what was not sewage. The author began his paper by an attempt to justify *his* having taken up the question—he not being an engineer; and in the course of this, he gave his account of the manner of selection of the design of the Exhibition building of 1851, and of an invention of the "ridge-and-furrow system" of roofing,—being wrong on every point that he advanced as fact,—inclusive of a statement that the system of roofing was applied in the New Museum. We do not assert that engineering questions may not receive elucidation from medical men: there are instances enough to show in architecture and engineering, that good may accrue from extra-professional suggestions; but there is a growing tendency to expression of opinions on these questions, without the knowledge of facts; and the committee erred in affording opportunity for the statements, in the Statistical Section, which time and place did not allow to be refuted as deserved.

In the same section several other papers were read on subjects connected with the objects of our journal,—one of them a paper "On Local Taxation for Local Purposes," by Mr. R. Dowden, which led to discussion.

In the Section for Mechanical Science, the proceedings were of considerable importance. Mr. P. W. Barlow read a paper "On the Mechanical Effects of combining Suspension Chains and Girders, and the Value of the practical Application of this System," the discussion on which was pursued on the following day. Suspension bridges being economic of construction and suited to wide spans, the aim of the author, as in papers on the same subject at previous meetings of the Association, was to show that such bridges could be adapted for railway traffic, contrarily to the opinion of the late Robert Stephenson, Mr. Fairbairn, and most others in this country.

In the discussion, which was very interesting, Mr. Barlow's views as to the sufficiency of a form of girder, to impart stiffness to the roadway, were much contested; but were to a considerable extent supported by the president, Professor Rankine. It appeared that very little was known to the speakers, of the success (whatever that may be) of the application of the principle in the chief example referred to, namely, the Niagara-bridge, whether regarding the manner of passing trains across it and the effects of strain, or the construction of the bridge and dimensions: though we believe the most important particulars are published, and are to be had readily in this country. What was known and was put forward in the discussion, touched rather a question of strength of the several members of the construction, than that of the suspension *principle* as applied in the bridge. Mr. Fairbairn especially dwelt upon the fact that when in the north of England, experiment had been made on the effect of a railway train on a suspension-bridge, it had been found that the roadway rose in the form of a wave in front of the advancing engine. Mr. Edward Hall observed that there were provisions in the Niagara-bridge to prevent the effects instanced by Mr. Fairbairn. The underside of the roadway was held down by inclined tension-rods anchored to the piers, similarly to the arrangement in the Brighton Chain-Pier, adopted after the storm some years back. It appeared to him, therefore, that the effects were not inevitable. Also, he believed, that the Niagara-bridge was so far a successful work, that its engineer, Mr. Roebling, was proceeding, or had proceeded, to the application of the principle to other bridges. In the course of the discussion, Mr. E. Cowper, who agreed with Mr. Barlow on the applicability of the suspension principle, but differed with him on the method of overcoming disadvantages of the present suspension bridges, brought forward his own proposal for the construction of a rigid suspension bridge. He believed that the passage of rolling weights would rapidly destroy the bolts and rivets of the links of a chain; and we would, therefore, substitute for the catenary of many links, a rigid piece of construction of riveted boiler-plate, of the same catenary figure, and of the usual form of section for girders, but so deep in the web or connection of top and bottom flanges, that the tensile strain, the only one to which it would be subjected, would follow a curve within the depth of the construction, or, in either case, whether of the bridge being loaded or not loaded. By this principle, rigidity in the roadway would be combined with the advantages of the suspension principle, more effectually than by addition of a girder. We may explain here that it did not appear to be contemplated by Mr. Barlow, that his added girder should bear any portion of the ordinary weight; but that such weight, as well as the girder itself, should be borne by the chains. Respecting the modification of the principle by the late Mr. Brunel in the Saltash and Chepstow bridges, where, instead of anchorage of the ends of the chain in the usual manner, there is a great cross-

head, or girder, in a state of compression between the towers, Mr. Barlow did not seem to consider that the method secured the economic advantages of the suspension principle.

A subject equally important at the present time, was that of Mr. Fairbairn's paper, entitled "Experiments to determine the effects of vibratory action, and long continued changes of load upon wrought-iron girders." The subject has engaged the attention of Mr. Fairbairn, as will be known to most of our readers, since the date of the experiments by himself and Mr. Hodkingson, which have done so much for our knowledge of the best form for cast-iron girders; and the investigation into the effect of time in contributing to destruction, is still in progress under the author of the present paper. Mr. Fairbairn observed that opinions were still much divided upon the question, namely, whether the continuous changes of load which many wrought-iron constructions undergo, have any permanent effect upon their ultimate powers of resistance,—that is, whether a beam or other construction, subjected to a perpetual change of load, would suffer such a change in structure of the iron, or tenacity of the joints, that it would in time break with a much less force than its original breaking weight. Few facts were known bearing on the solution. We knew that in some cases, wrought-iron subjected to continuous vibration assumed a crystalline structure, and was deteriorated in cohesive properties; but we were ignorant of the causes of this change, and of the precise conditions under which it occurred. The commissioners appointed to inquire into the application of iron to railway structures, found that in cast-iron, no bars would stand 4,000 impacts, bending them through one half their ultimate deflection, but "that sound bars would sustain at least 4,000 impacts bending them through one-third of their ultimate statical deflection." They ascertained, also, that when the load was placed without impact, the bar was not weakened, provided the deflection did not exceed one-third of the ultimate deflection; but that if the deflection were one-half the ultimate deflection, the bar was broken with not more than 900 changes of load. With wrought-iron bars they found no perceptible effect from 10,000 changes of load when the deflections were produced by a weight equal to half the statical breaking weight. Interesting as these experiments were, they were incomplete as regards wrought iron. For bars, they were not continued long enough; and they do not apply to a construction of riveted plates. The question for solution was, whether girders of the kind now so much used became weakened from the continual passage of trains, and whether it is requisite to give increased strength accordingly, or for deterioration beyond that from the influence of the atmosphere. A contrivance was devised for the experiments, imitative of the gradual manner in which the load is brought upon bridges, and of a succession of impacts. First, a girder formed of plate and angle iron, having been loaded with one-fourth of its ultimate breaking weight, the experiment commenced by causing the beam to undergo impacts, or changes, amounting to about eight a minute, or half a million in the two months for which the experiment lasted; the result being that there was no visible alteration. The load was then increased from one-fourth, to one-third of the statical breaking weight; and the experiment proceeded till the total number of changes amounted to one million. It sustained these changes with only a slight increase of permanent set in the latter experiment; but the experiment being continued with a load from one-third to one-half that which would ordinarily break the beam, it broke after 5,175 more changes. The beam, of course, had been submitted to severe tests; and the molecular construction had, no doubt, suffered considerably ere it gave way. The fracture occurred across the bottom plate and angle iron, and part way up through the side plate, and at two rivet-holes immediately under the shackle from which, in the centre of the beam, the load was suspended. These facts (submitted to the Association, by permission of the Board of Trade) were rightly regarded as of immense importance, and it was desirable they should be continued. A recommendation was subsequently made by the Association to this effect. Mr. Fairbairn considered these experiments tended to show that there was a limit of time, however remote, to the endurance of such pieces of construction as those of iron bridges of railways, calculated on the hitherto recognized data; and that this required the provision of additional strength. In the discussion, it was remarked, that experiments tried with weight in one place, were not the test for rolling weight; but the necessity for special provision against the percussive action of a railway train, was adverted to by Colonel James; and facts of the destruction of fibrous character of axles, and of similar parts of steam-engines, were mentioned by several speakers. Mr. Fairbairn said the lifetime of axles on railways, could not be computed at more than four to five years; and that, in short, no material could be depended upon permanently, subjected to variable strain. In consequence of what had been ascertained, the Railway Board had largely increased their requirements for the strength of bridges in proportion to the load.

In the same section a paper was read by Mr. Callcott Reilly, "On the Longitudinal Stress of the Plate Girder;" and there were also a paper "On a new Mode of obtaining Blast of very high Temperature in the Manufacture of Iron," by Mr. Cowper; one "On a Cylindrical Spiral Boiler," by Mr. J. Elder; one "On the Density of Saturated Steam; and on the Law of Expansion for superheated Steam," by Mr. Fairbairn; one "On Giffard's Steam-jet Feed Apparatus," by Mr. W. Froude; and one "On an Atmospheric Washing Machine," by Mr. John Fisher. In the washing-machine, air was forced in at the bottom of the vessel, by means of bellows worked by turning a handle; and the results were said to be quite successful. Also, in this section, Admiral Tayler described and illustrated by models, "A novel means to lessen the frightful loss of life round our exposed coasts, by rendering the element itself an inert barrier against the power of the sea; also a permanent deep-water harbour of refuge by artificial bars." The subject is one to which the author has long given attention. He considers that stone breakwaters are always of short duration. In the case of those of rough stone, he says disruption of the masses must occur from the compressed air in vacuities, when the waves are dashed against the breakwater. He therefore advocates the adoption of timber framework. One of his models showed a structure of open timbers, somewhat in the form of a prism laid horizontally, with one of the edges downwards, which would be placed at anchor, and would be furnished with gangways at the top, and otherwise designed to afford place for shelter. A paper was read in this section by Mr. David Chadwick, "On Water Meters," in which a meter was described which it was considered would prevent waste, as well as, on the other hand, restrictions of a non-sanitary character. The determination of the best form of meter, he remarked, was of importance both to the companies, sellers, and the public who were buyers of water; and there was no reason, if a suitable apparatus existed, why water should not be sold by measure, like gas. No one entertained the idea of buying or selling gas otherwise than by meter, although frequent complaints were made of defective registration by the contrivances in use.

Until about seven years ago, no high-pressure water-meter had been constructed on which reliance could be placed. There were now about 10,000 high-pressure water-meters in use in Europe, of which about one-half were of the kind known as "Inferential Meters," under the names of different inventors, and the remainder as "Positive Meters," working on the principle of the piston and cylinder. From 1824 to 1858, 84 patents had been taken out for meters; and it might be affirmed that not more than six or seven of these are in practical use, and only two were in extensive use. The principle of increasing by inference, from the revolution of a wheel, spiral fan, or turbine, did not seem likely to give exact results; and with the best workmanship there was leakage, varying according to size of the meter, when used under circumstances in which the velocity of the current was insufficient to overcome the friction of the working parts of the machine. The new high-pressure piston water-meter of Chadwick and Frost, the author of the paper considered overcame the difficulties and objections. The contrivance would not be intelligible from mere verbal description; but, as experience of the use of nearly one hundred of these meters has appeared to confirm anticipations of their efficacy and durability, we may be considered to have rightly called attention to them.

Mr. Kell, taking up the subject of the paper, said he was connected with a company in the north of England where they had used a meter on the principle of the vortex wheel. This had been discontinued in consequence of small shells becoming fixed in it, and interfering with the workings. They now used Kennedy's meter (which Mr. Chadwick had named as one of those on the piston and cylinder principle), and they had no reason to doubt its accuracy. Consumption of water for domestic purposes, they found to be 25 to 35 gallons per day. Waste of a portion of this quantity could not be prevented; the small houses not having meters. The chairman stated with regard to waste, that the inhabitants of Glasgow, since the supply from Loch Katrine, drew about 50 gallons per head per day. One family had drawn 2,500 gallons daily; and many families drew two-thirds more than they used. Mr. Chadwick said that for the last seven years, he had measured the water used in his house. His family consisted of nine persons; the water was carried into the cellar, ground-floor, bed-rooms, two closets, and bath; and as he was a sanitary man, they used water to excess. Finding the quantity was 180 gallons, he thought 20 gallons per head must be the maximum daily consumption for all domestic purposes: all above that was waste.

The last paper in this section which we are able to notice, was "On Street Railways as used in the United States," by Mr. G. F. Train, who is about commencing the formation of the railway at Birkenhead. The paper was illustrated by a model of a car on the rails. The rails were broad tracks well suited for the wheels of waggons, and were furnished with strong flanges rising very slightly above the general level to receive the flanged wheels of the cars. We have so recently and so fully treated the subject in connection with that of improved metropolitan communications, and the saving of time and avoidance of confusion in the existing streets, that we need not quote the points of argument in favour of the system, as they were stated by Mr. Train. The truth is, as was shown at the section, there is perfect unanimity of opinion as to the saving of time, and the lessened confusion and wear and tear, which would follow from the introduction of horse-railways or tramways into the London streets viewed as they are. New main routes and greater width of the present thoroughfares, are required; but the tramway, at least one line along the centre of the street, would be a considerable gain in almost any of the routes. Narrowness of streets is not found to be an objection in America. The non-introduction of these tramways into the streets of English towns was imputed by the author of the paper to Sir Benjamin Hall, who had thrown cold water upon one project "partly to please his constitutency; but mainly, because an accident happened to his carriage in passing some coal tramway in Wales." Mr. Train referred to tramways of this kind, to those in Paris and St. Petersburgh, the tramway from Carnarvon to Nantle, and the omnibus railway along the docks at Liverpool, as giving no idea of what he contemplated. The advantages of the amended system for omnibus traffic, he said, were that "you ride in less time, with less confusion, less noise, less fear of accident, less mud and dust; and with the additional luxury of more regularity, more attention, more comfort, more room, better light, better ventilation, and with a greater facility of ingress and egress." The carriages, or cars, for the Birkenhead traffic, are commenced. The reports of proceedings of the section in the local papers, print a great deal of irrelevant matter which we did not hear read, and which if furnished to them by Mr. Train, he would do well to omit on subsequent occasions. But he has evidently the energy to carry forward the undertaking upon which he has embarked. He has already placed himself in communication with the authorities of several large towns. In reply to questions, Mr. Train explained that his car would accommodate sixty passengers in all, and that gradients of one in thirty would be surmounted easily by two horses. For steep gradients an additional horse might be required. On the tramway, two horses would draw five times as much as they would on the common road. Dr. Carpenter, who had lately returned from America, spoke forcibly on the advantages of the principle in every respect. In Boston, which was like an English town, in its crooked streets, the system worked well, and caused a reduction in the number of vehicles and in the confusion of traffic. Mr. P. Le Neve Foster spoke to a similar effect, as did also Mr. Smith, of "The Artizan." The latter, alluding to remarks on the possibility of inconvenience through stoppages and different speed of traffic, referred to one of the inventions for shifting the flange of the wheel, whereby the carriage could readily be turned on or off the line or the common road. The Chairman said there was no doubt, the advantages of the street-railway had, owing to a concentration of attention upon the system required for long distances in the country, been too little attended to. Referring to objections which had been raised, he said that

he had been engaged in the construction of a horse-railway; and he had found that one horse could draw forty passengers up ascents of 1 in 66, to 1 in 40, at the rate of five miles an hour, the average speed on a level being ten or twelve miles an hour. They had on his line level crossings, but met with no accident; though there were trains of coal-waggons, there was no difficulty in passing them; and there was this convenience in the system that the train could be stopped anywhere, to set a passenger down near his home, instead of at a distance from it. He saw no difficulty in carrying out the same system in our streets, but rather every advantage. The rails proposed by Mr. Train would not interfere with the ordinary use of the road; they would, on the contrary, serve for the ordinary vehicles. His experience showed there was no difficulty in getting round curves of great sharpness. For very steep ascents, it was only necessary to have an additional horse: although for Holborn-hill and Ludgate-hill, the proper corrective was a viaduct.

In the Mechanical Section, also, a paper was read by the Earl of Caithness, "On Road Locomotives," in illustration of which a carriage was shown working along the streets of the city.

Had our space permitted, we could have wished to note particulars of some of the papers of which only titles were given in our last. Dr. Gladstone's paper, "On his own Perception of Colours," was exceedingly important, as showing that there is an intermediate condition between absolute colour-blindness and the accurate perception, not hitherto recognized by those who have paid most attention to the subject, but adverted to as possible when the attention of the Department of Art, and of decorative artists, was called to the subject by a correspondent in our journal. This condition, it appears, is capable of improvement. The instrument described by Dr. Maxwell, for exhibiting any mixture of colours of the spectrum, would have been equally worthy of notice.

The proceedings in the Mechanical Section included the reading of several important papers. The business at Oxford was wound up under the general impression that the meeting had been one of the most successful since the Association was established. This opinion we willingly endorse, saving only as to the charges by the townspeople, and the difficulty of getting anything whatever to compensate for them. Also, we may add, that the map of the town, and arrangements in some other points, might have been improved. The inconveniences to those not housed in colleges, sent many of the visitors away at the end of the first week. Next year the meeting will be held in Manchester, under the presidency of Mr. William Fairbairn.

The condition of the low land about Oxford, charged with moisture from the overflow of the numerous branches of the streams, which almost encircle the town, or intersect many parts of it,—and exhaling perceptible miasma under the action of the sun,—gives reason for apprehension as to the proximate sanitary state of the town. A very difficult engineering question is involved, which is receiving some attention from correspondents of the local journals. We gave in our last, the title of a paper, by the Rev. J. C. Clutterbuck, which ought to afford some hints to those competent to suggest improvements.

VISITS TO MANUFACTORIES.

THE PREPARATION OF BOXWOOD.

AMONGST the manufactures of the metropolis there is one which, although it is not of any great extent, yet is connected in such an important manner with literature and art, that it deserves notice; for, without the process of which we are about to speak, the illustrations which in our day are made to advance the teaching of science and other descriptions of knowledge could not be given. Some of our professional readers may think that the method of preparing box-wood blocks for the use of engravers is so well known as not here to require note. In truth, however, more than ninety in each hundred persons, even of some education, know little of either the nature of the material or the manner in which the box-wood is prepared for use.

Box-wood is about as heavy and durable as ebony, and cuts better than any other description of wood. So close and even is its surface that, by the means of sharp gravers, it can be cut with the greatest delicacy in all directions on the cross grain of the wood. In England a dwarf description of box is used for the flower borders of gardens. There is, however, a larger species, which grows at times to 15 feet in height. The diameter of the trunk at the widest part is not more than 6 inches. The great demand for wood of this size, and the large value of it, have caused the finest of this description of trees to be cut down at Box-hill and other parts of this country. The wood is further valuable for the making of the handles of some kinds of tools, delicate parts of surgical instruments, children's toys, such as peg-tops; and, by a steam process, this close-grained wood can for a time be made soft as wax, on which by means of pressure medallions and other ornamentation can be stamped by engraved dies. Snuff-boxes and parts of cabinets have been beautifully decorated in this manner.

The introduction of wood-engraving by the Bewicks soon led to a considerable demand for box-wood suitable for the practice of that art, and it was worth the while of speculative merchants to import box-wood from Turkey and some other districts in the East. From them a larger description of wood was obtained than any that had been grown in England, yet the large box-wood of a useful description, from even foreign parts, seldom exceeded 12 inches in diameter. From this a square of a considerable size might be cut. The nature of box-wood is, however, to retain the sap and moisture for a long period; and, until these have been carefully removed by time and keeping in a dry and tolerably warm atmosphere, the wood, when cut into slices of the proper width, is liable to warp and split in various directions from the outer bark towards the pith or centre of the tree. The undried wood, and even that properly seasoned, without great care, is liable to warp; and if in that state, after the block has been drawn and engraved on, it be exposed to the pressure of the printing-press, it will be likely to split into many pieces, and thus destroy the valuable work of both the draughtsman and engraver. Besides this loss is the more serious inconvenience of these accidents happening at the time when a periodical publication is ready for printing.

It may be worth while to mention that the form of the type used for books, newspapers, and all other printed matter, is of a uniform height,—about ¾ of an inch,—and to this thickness the box-wood for the use of the engravers must be reduced. In addition to the trouble caused by the splitting above referred to, few blocks of large size can be found without specks of soft rotten parts, which would crumble under the action of the graver. If one of these happened in a dark part of the design, or a tint of clear sky, this imperfection in the printing would prove a sad blot,—a flaw destroying the general effect of a wood engraving in a most unpleasant manner. For some time these difficulties restricted the size of wood-engraving; but Thomas Bewick, ambitious to excel on a larger scale, produced some works on wood which, although not so large as the page-blocks of the *Builder*, were nevertheless looked upon with wonder. This was effected by selecting pieces with great care and at much cost, and joining them together with metal clasps. This did not, however, prevent the destruction of the wood: one piece more porous than another was affected to a greater extent by the changes of temperature, and pined and shrunk away from its neighbour in spite of the iron binding: another piece would crack or warp; and all was trouble and uncertainty; when Mr. William Hervey, who was a pupil of both Thomas Bewick and the clever but improvident Hayden, made a worthy attempt to produce the picture, by his latter master, of the "Assassination of Dentatus," on what was then thought a large scale, on wood. The greatest difficulty was experienced by the artist to provide a sufficient block, although that beautiful and artistic work is not much, if any, larger than a page of the *Illustrated London News*. This block* was, like the castle-gate described by the poet, "clamped with iron within and without." This, however, did not prevent the warping of this fine work.

When the *Penny Magazine* was established, the difficulty of procuring proper blocks for the largest cuts was great, and the artists who worked upon them will remember the anxiety they experienced when the studio got too hot, and caused premonitory cracks, similar to those heard amongst the wood fittings of old churches and houses on a change of weather. Another drawback was, that in a large block (as then called) only one engraver could work at the same time. It is evident that without improvements it would have been quite impossible, even within any reasonable time, to have produced the cuts in our own journal, much less those, of immense size, which have appeared at such times as the Duke of Wellington's funeral in the *Illustrated London News*, and some other illustrated newspapers. In order to show how this difficulty has been overcome, we will step into the workplace of a preparer of box-wood, who has for several years been engaged in making this material ready for the engravers. Here are stacked large quantities of box-wood cut into slices of a little over the required thickness, brought from the places abroad already mentioned. These slices of box-wood are in few instances perfect, but are split from the centre, or else imperfect in other respects. A small steam-engine is at work, and we cannot but think of the wonder which would have been felt by Thomas Bewick if any one had hinted that such a powerful means would have been needed to fashion the wood required for the engraver.

Here we learn that this manufacture is confined to only two or three firms, and that there are some secrets in the trade which it is not considered desirable by the box-wood preparers to reveal. Having been accustomed to look for some time past at many works, some of immense extent, when we have been shown with great readiness the various operations, and anxiety expressed to explain the various processes to the public, it reminded us of old days to be told that there are mysteries in this trade into which it is not convenient to inquire. Without being too curious in this instance, we will look at the process of selecting from the circular slices of wood the perfect parts, and cutting them, with a circular saw driven by steam power, into square, oblong, and other shaped pieces. These, by a process of which we are not informed, are planed with the greatest nicety, and joined together with glue, or some species of cement: sutures of cedar or some other wood are passed from one small block to another; and when a portion of what may be a large block has in this way been joined together and allowed a sufficient time for drying, it is a matter of rare occurrence that any portion of this skilfully-arranged mass will separate or crack. The whole of the joined block can be separated, so that when an engraving is needed in haste, one of these blocks can be divided into six portions, so that instead of one engraver, six might be engaged at the same time. Care is, of course, to be taken that the work on each part of the block should correspond; but this is, in a measure, partly effected by the touches of the draughtsman, and the cutting of the proper lines at the joinings by a skilled engraver gives a key to the whole work, which produces uniformity.

At the back of the block oblong holes are pierced, about half way through the block: these are for the purpose of inserting brass screws of about 2½ inches long. Before passing the screw, by means of a properly-drilled hole, a nut is dropped into each of the orifices above mentioned, and attached to the screw, which is octagonal: these can be turned by a key made of the proper form, which draws the parts of the block tightly together; and so nice is the fitting of the joints, that if the block is properly managed there should in printing be no evidence of any of the divisions of the block.

Sometimes, in the hurry of going to press, this is not sufficiently attended to, and the consequence is those white straight lines, which mar the beauty of many wood engravings. In this manufacture much depends on the quality of the wood and on the great nicety with which the various small pieces of box wood are squared and joined together; and it would be worth while for any ingenious mechanic, who might be anxious to understand the nature of this construction more clearly than we have at present the means of showing, to examine one of these prepared blocks, and particularly notice the manner of joining and inserting the bands of softer wood into the permanently-joined parts of the blocks.

It seems to be a matter of dispute who was the person to whom credit is due for bringing this work to its present state of perfection. It is, however, certain, that Mr. Branston, to whom the art of wood-engraving is in other ways indebted, long made expensive experiments in order to prepare blocks of this description. In this he was in a great measure assisted by Mr. Williamson, of Pickett-place, Strand, who, in the forty-third volume of the "Transactions of the Society of Arts and Manufactures," page 58, describes a plan, worked by a peculiar action, which prepares a surface of wood so smooth and generally even, that it requires little, if any, further polishing for the uses of the engraver. Mr. Wells, of Bouverie-street, also lays claim to have brought this invention to perfection.

* It would form a feature of very great interest, and even instruction, if some of the engraved blocks by Bewick and some others of the early engravers on wood could be gathered together and placed in the Brompton Museum.

The cost of boxwood thus prepared is from 1½d. to 2d. per square inch. A page block of the *Builder* costs from 10s. to 12s. This shows that a very large sum must be expended on this article in England alone; and in consequence of the facilities which we have for the importation of boxwood, and our skill in its preparation, it is likely that both the Parisian and German wood-engravers would be glad to come to this market but for a duty of say 30 or 35 per cent., and the great cost of insurance and carriage, which would probably amount to more than 50 per cent.

Having thus glanced at the manner of this manufacture, it may be worth while to mention the method of preparing the surface of blocks for the use of draughtsmen.

When the block is completed it has a smooth and somewhat greasy surface, on which neither black-lead pencil would mark nor could Indian ink be properly laid: it is therefore necessary to give it a sort of tooth; and, while this is done, the preparation must neither be so thick nor so gritty as to interfere with or damage the engraver's tools. The best preparation is a quantity, according to the size of the block needed for use, of the best finely-powdered flake white,* diluted with a very weak mixture of gum arabic and water. When sufficiently mixed, it must be spread evenly over the block, from side to side and from end to end, until the whole is covered with a very thin even stratum.

To those, however, who have not the opportunity of seeing this simple operation performed by one used to it, it is perhaps better to ask the wood-preparer to make ready the block. By means of tracing on black-lead paper, the design can be easily transferred, and then both pencil and Indian ink can be worked, the same as on paper.

THE ARRANGEMENTS IN THE BRITISH MUSEUM.

IT ought to be generally known to artists and other students who visit the Reading-room of the British Museum, that right of admission to that department is not sufficient, without further express permission, to allow persons to visit or sketch in other parts of the Museum collections on the closed days.

There are, for instance, the Manuscript-room, the Print-room, the Egyptian, Ornithological, Geological, Botanical, and several other departments, which have each a head; and according to the present regulations it is necessary, before free access can be had to the different galleries of the Museum, to obtain about a dozen permissions. This arrangement is unpleasant to some of those who have charge of departments, and the cause of inconvenience and loss of time to those who are engaged in collecting varied information.

A chief reason for continuing the galleries of natural history and antiquities in immediate connection with the Reading-room is the advantage which readers have in the ready means of examination and contrast of objects. But, if a person engaged in some historical inquiry wished to examine and sketch a medal or other object, in order to be certain that the description in books is correct, he would be told that according to the regulations it is necessary that application should be made to the head of the department. This might cause a delay of several days. It would be the same in connection with the Print-room, and elsewhere. The writer, on one occasion being suddenly called upon to make a tracing in the Manuscript-room of a matter required for immediate publication, found that, although as a reader he might be permitted to look at the MS., he could not trace it without an introduction from one personally known to the keeper of the manuscripts. It may be that a young man who is commencing his career, although able to obtain sufficient introduction to the Reading-room, has not any friend who can give him a recommendation to the heads of departments. Or it may be that such friends are out of town, so that a delay may take place in getting the means of obtaining matters which may be of the greatest use for some purpose of the press, or other illustration. Several persons will remember the inconvenience of this, and that in the old times Sir Henry Ellis stepped out of the routine of his office, and gave facilities which persons might otherwise have had some difficulty in obtaining.

Once the writer, in explanation of some printed matter, suddenly needed to leave the reading-room for the purpose of examining and drawing several natural history objects, and, on reaching the place, an attendant said,—"Have you an order to sketch here? If not, it is necessary to have an express permission." The head of the department did not at the time happen to be in, but on his arrival said,—"I do not wish to ask about orders, and, so long as no damage is done, it pleases me to see any one come to sketch." But an order is needed, and, in this case, if it had been officially applied for, such a delay would have taken place as would for the purpose have rendered the matter useless. In some other departments the chief officer might be more strict or less courteous. But, even under the best circumstances, few wish to obtain a matter of this kind on sufferance. It would be well for the trustees of the British Museum to consider if a beneficial change might not be made in rendering the admission to the reading-room, art, and other collections more general, and that, as the right of admission to the library is obtained only by persons of respectability and position, the same should carry the right to the use of all the galleries.

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ALTERATIONS at King's-cross, or Battle-bridge we would rather call it, are going rapidly forward, and so altered will the spot soon be that those who knew it twelve or fifteen years ago, and have not seen it in the meanwhile, will fail shortly to recognize this important point of the metropolitan thoroughfares. At about the time mentioned a dingy-looking piece of green sward, enclosed by an iron railing, led to the Small-pox Hospital, a plain brick building, with a dome surmounted by a weathercock over the central entrance, which is, probably, the only fragment of this edifice remaining. It is now above a shop nearly opposite the railway hotel. The site of the hospital and grounds is covered by a portion of the Great Northern station and the hotel. The statue of King George IV., to which we have before referred, stood near the large lamp, surmounted by a ducal crown, which, though not so conspicuous as the "cross," as it was called, is not designed in much better taste.

There are few efforts which have had the least pretension to art of which we have such an unpleasing memory as of the clumsy stuccoed figure of royalty which once stood here. The changes on the north side prevent one from being reminded of it; but often the peculiar corner, which will be soon amongst the matters of the past, would bring unpleasantly to mind the architectural pedestal the superstructure of stiff line which were supposed to represent the drapery of royal robes, and that singular countenance, mouldy-looking, weather-beaten, and falling like "shreds of scutcheons" (but more prematurely) into decay.

DESIGNS FOR THE FOREIGN OFFICE.

MR. D. FORTESCUE, in the House of Commons, asked the First Commissioner of Works whether it was his intention in the course of the present session to submit Mr. Scott's amended designs for the Foreign Office to the inspection of members of this House, and if so, when?—Mr. Cowper said Mr. Scott had prepared designs for an elevation in the Italian style. That design was still under consideration, and therefore at the present moment he was not able to answer the question, but he hoped in a few days to be in a condition to do so.

THE RAGGED REGIMENT IN WESTMINSTER ABBEY.

IN former days, when people were less cultivated than at present, there were exhibited at the same time with the tombs and effigies of the kings, queens, and the noble in intellect and rank, in a portion of the interior of the Abbey, a singular collection of figures, which were known as the Ragged Regiment. Many persons who visited this ancient building took more interest in these figures than in matters really worthy of notice.

Amongst the most conspicuous of them was an effigy of Queen Elizabeth, wearing, it was said, her coronation robes. There were, besides, the Earl of Chatham, Lord Nelson, and other worthies of more modern date. Some of the figures are of ancient date. The garments had, however, become dilapidated (whence the name); in some cases, were entirely removed. Some had been carried in the funeral processions of several monarchs, upon the hearse. This fashion went out of use, and we believe that the last of these effigies brought to Westminster Abbey was that of the first earl of Chatham. In those days it appears that the attendants at the Abbey were without any regular salary, and they were allowed, as a perquisite, to exhibit the Ragged Regiment at a stated sum to the curious. In order to increase the attraction they renovated and made gay some of the most popular of the ancient characters, and added the waxwork effigies of persons of note, who, although not buried in the Abbey, were much

under the notice of the public. The regiment, in this way, became, in such a place, offensive to right taste and feeling, and arrangements were made to pay the attendants in a more proper manner, and close this exhibition.

For many years now the Ragged Regiment has been hidden from the public view. The modern part is worthless, and might well be disposed of. Some of the old figures are, however, curiously cut, and worthy of preservation as remnants of the past. A sight of this regiment of wooden and wax figures, once an exhibition in such a place, shows that in matters of taste and propriety the present generation has made an advance upon the last.

ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

A DISTRIBUTION of prizes in classes of architecture and construction took place on Tuesday, the 3rd inst., when the following were adjudicated as the result of the examination, by Professor Donaldson, for the session 1859-60:—

Fine Art.—1st year, prize and 1st certificate, Edward Mawley; 2nd year, prize and 1st certificate, Ernest Beck; and 2nd and 3rd certificates to J. H. Tarring and Francis Nibbs.

Construction.—1st year's prize, and 1st certificate, Edward Mawley; 2nd certificate, C. H. Bright; 2nd year's prize, and first certificate, Francis Nibbs; and 2nd certificate, J. H. Tarring.

FRANCE.

AT Saint Malo, the new works ordered by the Emperor in his decree of the 24th March, 1860, for finishing the floating-basin, consist of the following:—

1. The Napoleon Quay, valued at 1,820,000 francs.

2. Interior Dyke, 640,000 francs.

3. Sluices for letting in water, 540,000 francs; moles to protect the locks, 250,000 francs; swing bridges, 87,000 francs; culvert sluices, 54,000 francs; lock-gates, 620,000 francs; basin-gates, 480,000 francs; breakwater against the north-east currents, 50,000 francs; contingencies, 459,000 francs. Total, 5,000,000 francs. These works will yield to the state revenues of the floating-basin; also tolls for graving dock, and the use of the gridiron for ships, besides the road revenues on the highway between Saint Malo and Saint Servan.

The racecourse of Craon (Mayenne), recently established, is likely, from the beauty of its scenery, to take a prominent position in the ranks of French hippodromes. The next meeting will take place on the 16th September next, and Horace Vernet, who holds property in that department, is painting a work for the Society. It is to be presented by him as a gift to the winner of the handicap reserved for French horses.

NOTES IN IRELAND.

THE War Department are about having a Royal Engineer office built in connection with the Royal Barracks, Dublin, as also certain drainage works executed at the Curragh camp.

A new iron bridge, with masonry abutments, is to be built in the county Cavan, on the post road from Cavan to Arva, according to plans by the county surveyor. Tenders to the 17th July.

The church at Drumcliffe, Ennis, is to be rebuilt, according to plans by the architects to the Ecclesiastical Commissioners.

Messrs. Gillespie and William Welland are the newly appointed architects to the Ecclesiastical Commissioners of Ireland, in lieu of the late Mr. Joseph Welland.

The Royal Hibernian Academy have opened their exhibition of pictures to the working classes in the evenings, at a charge of one penny, and the attendances are very numerous. We learn that this body will shortly have an accession of six architectural members to its ranks, and which, we trust, will ensure a more creditable display in the department of architecture at the annual exhibition.

Extensive works are to be erected at the churches of Rathclarin, county Cork, and Kilflynn, county Kerry, by the Ecclesiastical Commissioners.

The additions and alterations to Sandford Church, near Dublin, are progressing towards completion, under the direction of Messrs. Lanyon, Lynn, and Lanyon, of Dublin and Belfast, architects, who are also about having built a mansion house and offices at Earlsfort-terrace, in the same city.

A new mart is to be erected in Drogheda, according to plans and under the direction of Mr. Lyons, of Dublin, architect. The town needs much improvement, and business premises generally have a neglected appearance. We understand that the internal arrangements of the Tholsel are to be remodelled, and it is desirable that they should be, for the hall or court is one of the most ill-arranged in the kingdom. A vast amount of discussion has taken place relative to the proposed new bridge over the Boyne, leading from the railway to the town, and various plans have been suggested; but lacking an indispensable requisite, we presume that they must remain for some time in abeyance, though the present structure is in a dilapidated and dangerous condition.

The subsidence in one of the piers of the viaduct, which caused much alarm, and gave rise to a lengthened discussion between certain professionals, is not of sufficient importance to impede the traffic, and has been pronounced by Mr. Hawkshaw, C.E., as not to afford grounds for immediate apprehension. House rents in the town have dwindled to such insignificance that commodious dwelling-houses may be had from 10*l.* to 12*l.* per annum, exclusive of taxes, which are heavy; yet trade is increasing, and excellent fairs and markets are periodically held.

The services of gentlemen of the long robe were more than usually called into requisition last term; and at the after sittings, in actions relative to disputed accounts with architects and builders, dilapidations, injuries to premises, &c., &c. In the case of "Cunningham *v.* Knox," for the latter cause, Mr. Whiteside, Q.C., M.P., thus humorously described plaintiff's case, his client being a hotel and dining-room keeper, and the defendant the proprietor of the *Irish Times*:—"The result of the working of the defendant's printing machine was that, when the visitors to the Ship Hotel sat down to dinner, the plates danced before them, and the knives and forks indulged in the same amusement." Cheapness might be a very desirable object; but counsel doubted very much "if a man would not be sulky if he was to read a newspaper while hungry and deprived of his dinner." The action was arranged by defendant paying 5*l.*, and naming an architect to see the requisite building operations made.

The new Roman Catholic Church recently erected at Cookstown, co. Tyrone, has been consecrated. The plan comprises nave, 80 feet by 25 feet; aisles 14 feet wide, chancel 32 feet deep, side-chapels, tower, sacristy, and vestry; style, Gothic. A five-light window, filled with stained glass, by Messrs. Hardman, of Birmingham and Dublin, lights the chancel; and the aisles and clerestory have also traceried windows. The roofs are of open timber-work; the high altar of Caen stone, by Mr. Lane, of Dublin; and the interior fixed carvings by Messrs. Purdy and Outhwaite. The tower (with spire 175 feet high) is placed central on west elevation, and has a deeply-recessed doorway, with three-light traceried windows, and canopied niche above in the first stage, and a two-light belfry, open, in the second. Mr. McCarthy, architect; *Dr.* Johnson and Mr. Charles the contractors.

Two memorial windows—one to Knox, the reformer, the other to Mrs. Hemans, the poetess—have been erected in St. Anne's Church, Dublin. The former is centrally placed in the chancel, and is 21 feet in height by 11 feet 6 inches wide; the latter at one side, 16 feet high, and 7 feet 6 inches wide, both Byzantine in character. They are to be filled with stained glass by Mr. Warrington, of London, and the stonework is by Messrs. Purdy and Outhwaite, of Dublin, supplied from the quarries of Messrs. Pictor & Son, of Chippenham, Wilts.

A new bridge is to be erected over the Lagan at Ormean, near Belfast, by the Board of Public Works.

Two new Gothic churches are to be erected respectively at Dingle and Fieres, county Kerry. Messrs. McCarthy & O'Connell, architects.

Extensive alterations are being made to the marine residence of the Marquis of Downshire, at Dundrum.

A small church in the Gothic style is to be built at Dollymount, near Dublin, after the plans by Mr. Rawson Carroll, architect. It will accommodate 300 persons.

A new railway hotel is in progress of erection at Kinsale. It has an Italian façade, with oriels, carried up two stories, an ornamented cornice, and balustraded parapet; spacious terrace in front, with steps descending to the river. Mr. Conybear, architect; Mr. Barnard, contractor.

Alterations and additions are to be made to the Court House, Armagh.

A church in Early English style, with nave and chancel 100 feet by 26 feet, vestry, tower, spire, &c., is being erected at Taghadoe, county Kerry. Mr. McCarthy, architect.

HER MAJESTY'S THEATRE: "OBERON."

IT is to be regretted that this fine work was not produced earlier in the season. Wanting in melody though it may be, it displays so many beauties, so much genius, that its popularity has increased each night. We may expect, however, that it will be given by Mr. Smith's English company, and with Madame Titiens and Mr. Sims Reeves, we shall be surprised if it do not even more completely lay hold of the sympathies than it has done with Signor Mongini. Signor Mongini is *so* robust a tenor that we find little sentiment or feeling in his singing. In "Oberon," the process with which we are most familiar was reversed. It was written for Weber by Mr. Planché, in English, and has been translated into various languages. Much of it is charmingly written, and has long been well known; for example, Huon's song, "Oh! 'tis a glorious sight to see," and Reiza's great scene,—

> "Ocean! thou mighty monster that liest curl'd,
> Like a green serpent, round about the world."

The scenery is very agreeably painted; "Oberon's bower," for example, with which the first act opens, and the banks of the Tigris, showing the City of Bagdad. For the eighth and ninth-century buildings in Bagdad the artist has adopted the Alhambra as his type,—a building of the fourteenth century,—and thus gives an aspect less archaic than might in strictness be desired. In Bagdad, during the reign of Haroun el Rasheed, the greatest magnificence prevailed; but of the buildings of that period not a vestige remains. There is nothing earlier than the thirteenth century. The artist would assert, and it would not be easy conclusively to disprove it, that Mahometan architecture had taken in Bagdad as magnificent a form in the eighth century, as we find it presenting in Spain in the fourteenth. Madame Alboni sings exquisitely the music entrusted to her, and Mr. Benedict has discharged the duty that devolved on him of fitting the opera to the present position of musical taste and knowledge, in a manner that has gained the approbation of Weber's warmest admirers.

ECCLESIOLOGICAL SOCIETY.

AT a committee meeting, held on Monday, June 11, the president, Mr. Beresford Hope, in the chair, Mr. Slater exhibited a design for a large mosaic pavement, to be executed in the *opus Alexandrinum* method, for the sanctuary of Chichester Cathedral.

Other architects exhibited designs.

Mr. E. R. Robson presented to the Society three photographs, representing portions of Durham Cathedral which no longer exist, taken from water-colour drawings by Carter, made in 1795. The following extract is from Mr. Robson's letter:—

"No. 1 shows the Galilee, in which nothing has been disturbed except the fifteenth century altar, replaced by enormous oak doors and cast-iron hinges.

No. 2 represents that end of the Chapter-house which, four years after the execution of Mr. Carter's drawing, was entirely swept away.

No. 3 gives the opposite end of the Chapter-house, which is not 'destroyed' (as Mr. Carter mentions), but only defaced. No vestige of the groining, or of the small side door, remains. The floor is of wood, about the same distance above the cloister pavement which it formerly measured in the opposite direction. The two-light windows have the window-order walled up.

The originals belonged to the late venerable antiquary, Dr. Raine, whose son has allowed the photographs to be taken for the Dean and Chapter of Durham.

"Thanks to the faithful work of Carter, the Chapter-house can be restored to its pristine glory, but, as Dr. Raine forcibly asks, 'Who can restore its pavement, studded with the gravestones of the first three centuries after the conquest?'"

At a committee meeting held immediately after the annual meeting, the president undertook to frame a memorial to the Incorporated Church Building Society, on the subject of chairs in churches.

The document was subsequently forwarded to the Incorporated Society; and the secretary, in reply, says:—"There was subsequently much discussion on the subject of chairs for churches, and a sub-committee has been appointed 'to consider the expediency of making grants' where they are introduced 'in lieu of fixed seats,' and the regulations under which such grants shall be made."

The cost of boxwood thus prepared is from 1½d. to 2d. per square inch. A page block of the *Builder* costs from 10s. to 12s. This shows that a very large sum must be expended on this article in England alone; and in consequence of the facilities which we have for the importation of boxwood, and our skill in its preparation, it is likely that both the Parisian and German wood-engravers would be glad to come to this market but for a duty of say 30 or 35 per cent., and the great cost of insurance and carriage, which would probably amount to more than 50 per cent.

Having thus glanced at the manner of this manufacture, it may be worth while to mention the method of preparing the surface of blocks for the use of draughtsmen.

When the block is completed it has a smooth and somewhat greasy surface, on which neither black-lead pencil would mark nor could Indian ink be properly laid: it is therefore necessary to give it a sort of tooth; and, while this is done, the preparation must neither be so thick nor so gritty as to interfere with or damage the engraver's tools. The best preparation is a quantity, according to the size of the block needed for use, of the best finely-powdered flake white,* diluted with a very weak mixture of gum arabic and water. When sufficiently mixed, it must be spread evenly over the block, from side to side and from end to end, until the whole is covered with a very thin even stratum.

To those, however, who have not the opportunity of seeing this simple operation performed by one used to it, it is perhaps better to ask the wood-preparer to make ready the block. By means of tracing on black-lead paper, the design can be easily transferred, and then both pencil and Indian ink can be worked, the same as on paper.

THE ARRANGEMENTS IN THE BRITISH MUSEUM.

IT ought to be generally known to artists and other students who visit the Reading-room of the British Museum, that right of admission to that department is not sufficient, without further express permission, to allow persons to visit or sketch in other parts of the Museum collections on the closed days.

There are, for instance, the Manuscript-room, the Print-room, the Egyptian, Ornithological, Geological, Botanical, and several other departments, which have each a head; and according to the present regulations it is necessary, before free access can be had to the different galleries of the Museum, to obtain about a dozen permissions. This arrangement is unpleasant to some of those who have charge of departments, and the cause of inconvenience and loss of time to those who are engaged in collecting varied information.

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CHANGES AT KING'S-CROSS.

ALTERATIONS at King's-cross, or Battle-bridge we would rather call it, are going rapidly forward, and so altered will the spot soon be that those who knew it twelve or fifteen years ago, and have not seen it in the meanwhile, will fail shortly to recognize this important point of the metropolitan thoroughfares. At about the time mentioned a dingy-looking piece of green sward, enclosed by an iron railing, led to the Small-pox Hospital, a plain brick building, with a dome surmounted by a weathercock over the central entrance, which is, probably, the only fragment of this edifice remaining. It is now above a shop nearly opposite the railway hotel. The site of the hospital and grounds is covered by a portion of the Great Northern station and the hotel. The statue of King George IV., to which we have before referred, stood near the large lamp, surmounted by a ducal crown, which, though not so conspicuous as the "cross," as it was called, is not designed in much better taste.

There are few efforts which have had the least pretension to art of which we have such an unpleasing memory as of the clumsy stuccoed figure of royalty which once stood here. The changes on the north side prevent one from being reminded of it; but often the peculiar corner, which will be soon amongst the matters of the past, would bring unpleasantly to mind the architectural pedestal the superstructure of stiff line which were supposed to represent the drapery of royal robes, and that singular countenance, mouldy-looking, weather-beaten, and falling like "shreds of scutcheons" (but more prematurely) into decay.

DESIGNS FOR THE FOREIGN OFFICE.

MR. D. FORTESCUE, in the House of Commons, asked the First Commissioner of Works whether it was his intention in the course of the present session to submit Mr. Scott's amended designs for the Foreign Office to the inspection of members of this House, and if so, when?—Mr. Cowper said Mr. Scott had prepared designs for an elevation in the Italian style. That design was still under consideration, and therefore at the present moment he was not able to answer the question, but he hoped in a few days to be in a condition to do so.

THE RAGGED REGIMENT IN WESTMINSTER ABBEY.

IN former days, when people were less cultivated than at present, there were exhibited at the same time with the tombs and effigies of the kings, queens, and the noble in intellect and rank, in a portion of the interior of the Abbey, a singular collection of figures, which were known as the Ragged Regiment. Many persons who visited this ancient building took more interest in these figures than in matters really worthy of notice.

Amongst the most conspicuous of them was an effigy of Queen Elizabeth, wearing, it was said, her coronation robes. There were, besides, the Earl of Chatham, Lord Nelson, and other worthies of more modern date. Some of the figures are of ancient date. The garments had, however, become dilapidated (whence the name); in some cases, were entirely removed. Some had been carried in the funeral processions of several monarchs, upon the hearse. This fashion went out of use, and we believe that the last of these effigies brought to Westminster Abbey was that of the first earl of Chatham. In those days it appears that the attendants at the Abbey were without any regular salary, and they were allowed, as a perquisite, to exhibit the Ragged Regiment at a stated sum to the curious. In order to increase the attraction they renovated and made gay some of the most popular of the ancient characters, and added the waxwork effigies of persons of note, who, although not buried in the Abbey, were much

under the notice of the public. The regiment, in this way, became, in such a place, offensive to right taste and feeling, and arrangements were made to pay the attendants in a more proper manner, and close this exhibition.

For many years now the Ragged Regiment has been hidden from the public view. The modern part is worthless, and might well be disposed of. Some of the old figures are, however, curiously cut, and worthy of preservation as remnants of the past. A sight of this regiment of wooden and wax figures, once an exhibition in such a place, shows that in matters of taste and propriety the present generation has made an advance upon the last.

ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

A DISTRIBUTION of prizes in classes of architecture and construction took place on Tuesday, the 3rd inst., when the following were adjudicated as the result of the examination, by Professor Donaldson, for the session 1859-60:—

Fine Art.—1st year, prize and 1st certificate, Edward Mawley; 2nd year, prize and 1st certificate, Ernest Beck; and 2nd and 3rd certificates to J. H. Tarring and Francis Nibbs.

Construction.—1st year's prize, and 1st certificate, Edward Mawley; 2nd certificate, C. H. Bright; 2nd year's prize, and first certificate, Francis Nibbs; and 2nd certificate, J. H. Tarring.

FRANCE.

AT Saint Malo, the new works ordered by the Emperor in his decree of the 24th March, 1860, for finishing the floating-basin, consist of the following:—

1. The Napoleon Quay, valued at 1,820,000 francs.

2. Interior Dyke, 640,000 francs.

3. Sluices for letting in water, 540,000 francs; moles to protect the locks, 250,000 francs; swing bridges, 87,000 francs; culvert sluices, 54,000 francs; lock-gates, 620,000 francs; basin-gates, 480,000 francs; breakwater against the north-east currents, 50,000 francs; contingencies, 459,000 francs. Total, 5,000,000 francs. These works will yield to the state revenues of the floating-basin; also tolls for graving dock, and the use of the gridiron for ships, besides the road revenues on the highway between Saint Malo and Saint Servan.

The racecourse of Craon (Mayenne), recently established, is likely, from the beauty of its scenery, to take a prominent position in the ranks of French hippodromes. The next meeting will take place on the 16th September next, and Horace Vernet, who holds property in that department, is painting a work for the Society. It is to be presented by him as a gift to the winner of the handicap reserved for French horses.

NOTES IN IRELAND.

THE War Department are about having a Royal Engineer office built in connection with the Royal Barracks, Dublin, as also certain drainage works executed at the Curragh camp.

A new iron bridge, with masonry abutments, is to be built in the county Cavan, on the post road from Cavan to Arva, according to plans by the county surveyor. Tenders to the 17th July.

The church at Drumcliffe, Ennis, is to be rebuilt, according to plans by the architects to the Ecclesiastical Commissioners.

Messrs. Gillespie and William Welland are the newly appointed architects to the Ecclesiastical Commissioners of Ireland, in lieu of the late Mr. Joseph Welland.

The Royal Hibernian Academy have opened their exhibition of pictures to the working classes in the evenings, at a charge of one penny, and the attendances are very numerous. We learn that this body will shortly have an accession of six architectural members to its ranks, and which, we trust, will ensure a more creditable display in the department of architecture at the annual exhibition.

Extensive works are to be erected at the churches of Rathclarin, county Cork, and Kilflynn, county Kerry, by the Ecclesiastical Commissioners.

The additions and alterations to Sandford Church, near Dublin, are progressing towards completion, under the direction of Messrs. Lanyon, Lynn, and Lanyon, of Dublin and Belfast, architects, who are also about having built a mansion house and offices at Earlsfort-terrace, in the same city.

A new mart is to be erected in Drogheda, according to plans and under the direction of Mr. Lyons, of Dublin, architect. The town needs much improvement, and business premises generally have a neglected appearance. We understand that the internal arrangements of the Tholsel are to be remodelled, and it is desirable that they should be, for the hall or court is one of the most ill-arranged in the kingdom. A vast amount of discussion has taken place relative to the proposed new bridge over the Boyne, leading from the railway to the town, and various plans have been suggested; but lacking an indispensable requisite, we presume that they must remain for some time in abeyance, though the present structure is in a dilapidated and dangerous condition.

The subsidence in one of the piers of the viaduct, which caused much alarm, and gave rise to a lengthened discussion between certain professionals, is not of sufficient importance to impede the traffic, and has been pronounced by Mr. Hawkshaw, C.E., as not to afford grounds for immediate apprehension. House rents in the town have dwindled to such insignificance that commodious dwelling-houses may be had from 10*l.* to 12*l.* per annum, exclusive of taxes, which are heavy; yet trade is increasing, and excellent fairs and markets are periodically held.

The services of gentlemen of the long robe were more than usually called into requisition last term; and at the after sittings, in actions relative to disputed accounts with architects and builders, dilapidations, injuries to premises, &c., &c. In the case of "Cunningham *v.* Knox," for the latter cause, Mr. Whiteside, Q.C., M.P., thus humorously described plaintiff's case, his client being a hotel and dining-room keeper, and the defendant the proprietor of the *Irish Times*:—"The result of the working of the defendant's printing machine was that, when the visitors to the Ship Hotel sat down to dinner, the plates danced before them, and the knives and forks indulged in the same amusement." Cheapness might be a very desirable object; but counsel doubted very much "if a man would not be sulky if he was to read a newspaper while hungry and deprived of his dinner." The action was arranged by defendant paying 5*l.*, and naming an architect to see the requisite building operations made.

The new Roman Catholic Church recently erected at Cookstown, co. Tyrone, has been consecrated. The plan comprises nave, 80 feet by 25 feet; aisles 14 feet wide, chancel 32 feet deep, side-chapels, tower, sacristy, and vestry; style, Gothic. A five-light window, filled with stained glass, by Messrs. Hardman, of Birmingham and Dublin, lights the chancel; and the aisles and clerestory have also traceried windows. The roofs are of open timber-work; the high altar of Caen stone, by Mr. Lane, of Dublin; and the interior fixed carvings by Messrs. Purdy and Outhwaite. The tower (with spire 175 feet high) is placed central on west elevation, and has a deeply-recessed doorway, with three-light traceried windows, and canopied niche above in the first stage, and a two-light belfry, open, in the second. Mr. McCarthy, architect; *Dr.* Johnson and Mr. Charles the contractors.

Two memorial windows—one to Knox, the reformer, the other to Mrs. Hemans, the poetess—have been erected in St. Anne's Church, Dublin. The former is centrally placed in the chancel, and is 21 feet in height by 11 feet 6 inches wide; the latter at one side, 16 feet high, and 7 feet 6 inches wide, both Byzantine in character. They are to be filled with stained glass by Mr. Warrington, of London, and the stonework is by Messrs. Purdy and Outhwaite, of Dublin, supplied from the quarries of Messrs. Pictor & Son, of Chippenham, Wilts.

A new bridge is to be erected over the Lagan at Ormean, near Belfast, by the Board of Public Works.

Two new Gothic churches are to be erected respectively at Dingle and Fieres, county Kerry. Messrs. McCarthy & O'Connell, architects.

Extensive alterations are being made to the marine residence of the Marquis of Downshire, at Dundrum.

A small church in the Gothic style is to be built at Dollymount, near Dublin, after the plans by Mr. Rawson Carroll, architect. It will accommodate 300 persons.

A new railway hotel is in progress of erection at Kinsale. It has an Italian façade, with oriels, carried up two stories, an ornamented cornice, and balustraded parapet; spacious terrace in front, with steps descending to the river. Mr. Conybear, architect; Mr. Barnard, contractor.

Alterations and additions are to be made to the Court House, Armagh.

A church in Early English style, with nave and chancel 100 feet by 26 feet, vestry, tower, spire, &c., is being erected at Taghadoe, county Kerry. Mr. McCarthy, architect.

HER MAJESTY'S THEATRE: "OBERON."

IT is to be regretted that this fine work was not produced earlier in the season. Wanting in melody though it may be, it displays so many beauties, so much genius, that its popularity has increased each night. We may expect, however, that it will be given by Mr. Smith's English company, and with Madame Titiens and Mr. Sims Reeves, we shall be surprised if it do not even more completely lay hold of the sympathies than it has done with Signor Mongini. Signor Mongini is *so* robust a tenor that we find little sentiment or feeling in his singing. In "Oberon," the process with which we are most familiar was reversed. It was written for Weber by Mr. Planché, in English, and has been translated into various languages. Much of it is charmingly written, and has long been well known; for example, Huon's song, "Oh! 'tis a glorious sight to see," and Reiza's great scene,—

> "Ocean! thou mighty monster that liest curl'd,
> Like a green serpent, round about the world."

The scenery is very agreeably painted; "Oberon's bower," for example, with which the first act opens, and the banks of the Tigris, showing the City of Bagdad. For the eighth and ninth-century buildings in Bagdad the artist has adopted the Alhambra as his type,—a building of the fourteenth century,—and thus gives an aspect less archaic than might in strictness be desired. In Bagdad, during the reign of Haroun el Rasheed, the greatest magnificence prevailed; but of the buildings of that period not a vestige remains. There is nothing earlier than the thirteenth century. The artist would assert, and it would not be easy conclusively to disprove it, that Mahometan architecture had taken in Bagdad as magnificent a form in the eighth century, as we find it presenting in Spain in the fourteenth. Madame Alboni sings exquisitely the music entrusted to her, and Mr. Benedict has discharged the duty that devolved on him of fitting the opera to the present position of musical taste and knowledge, in a manner that has gained the approbation of Weber's warmest admirers.

ECCLESIOLOGICAL SOCIETY.

AT a committee meeting, held on Monday, June 11, the president, Mr. Beresford Hope, in the chair, Mr. Slater exhibited a design for a large mosaic pavement, to be executed in the *opus Alexandrinum* method, for the sanctuary of Chichester Cathedral.

Other architects exhibited designs.

Mr. E. R. Robson presented to the Society three photographs, representing portions of Durham Cathedral which no longer exist, taken from water-colour drawings by Carter, made in 1795. The following extract is from Mr. Robson's letter:—

"No. 1 shows the Galilee, in which nothing has been disturbed except the fifteenth century altar, replaced by enormous oak doors and cast-iron hinges.

No. 2 represents that end of the Chapter-house which, four years after the execution of Mr. Carter's drawing, was entirely swept away.

No. 3 gives the opposite end of the Chapter-house, which is not 'destroyed' (as Mr. Carter mentions), but only defaced. No vestige of the groining, or of the small side door, remains. The floor is of wood, about the same distance above the cloister pavement which it formerly measured in the opposite direction. The two-light windows have the window-order walled up.

The originals belonged to the late venerable antiquary, Dr. Raine, whose son has allowed the photographs to be taken for the Dean and Chapter of Durham.

"Thanks to the faithful work of Carter, the Chapter-house can be restored to its pristine glory, but, as Dr. Raine forcibly asks, 'Who can restore its pavement, studded with the gravestones of the first three centuries after the conquest?'"

At a committee meeting held immediately after the annual meeting, the president undertook to frame a memorial to the Incorporated Church Building Society, on the subject of chairs in churches.

The document was subsequently forwarded to the Incorporated Society; and the secretary, in reply, says:—"There was subsequently much discussion on the subject of chairs for churches, and a sub-committee has been appointed 'to consider the expediency of making grants' where they are introduced 'in lieu of fixed seats,' and the regulations under which such grants shall be made."

MEDIÆVAL GROTESQUES.

GROTESQUES.

RESEARCHES IN LIBRARIES.*

THE accompanying fantastic designs are from a MS. of the fourteenth century, in the Royal Public Library of Stuttgart, in the kingdom of Wurtemberg, Germany. (Bibl., fol. 3, vol. iii.) The building is in Neckar-street. I copied them because they show such an exquisite healthy sense of humour, and, though grotesque, they are not obscene. They are, in the original, executed with a spirit and life remarkable for the *age*, especially in the expression of the faces.

A. B. LE V.

THAMES EMBANKMENT COMMITTEE.

AMONGST the schemes for Thames embankment laid before the committee now sitting, we must give an outline of that proposed by Mr. James Edmeston.

The road would run from Westminster-bridge to London-bridge upon a river wall as far as Southwark-bridge, and thence to London-bridge upon iron piles, so as to allow craft to pass under to the wharfs: from Westminster to Southwark it would be constructed so as to allow access to landing-places beneath, for the use of the owners of river-side property.

The road would pass under all the bridges, including Blackfriars, in which bridge an alteration in the first arch might be effected without stopping the traffic. The river wall would be recessed between Blackfriars-bridge and Southwark-bridge, to allow barges to lie near to the present frontages. The landing-places would be 4 feet above Trinity high-water mark, and the roadway over these recesses would be carried on iron girders, leaving large open spaces for landing purposes. The railway would run from Westminster-bridge to Queenhithe inside the river wall, just low enough to pass beneath the landing-stages or platforms, and thence would be continued in a tunnel to the Fenchurch-street station, and might be extended in a tunnel from Westminster to the new Pimlico station, communicating with the *Metropolitan* and *Hungerford-market* stations, and thus connecting all the railways north and south of the river. The entire proposed constructions, except where the river is very wide, would run as close to the side as possible, in order that owners of wharf frontages might receive the least possible injury, and also that the work might be done tide-work, and at as little cost as possible. But little water would be abstracted from the river. Opposite the Temple-gardens, and where desirable, an open arcade would be formed, which would in no way obstruct the view.

The railway behind the river wall would be at a level of about 8 feet above low water.

The intercepting sewer, which is proposed by the Metropolitan Board to pass through the Strand and Fleet-street, would pass beneath the railway, or in the river wall, as found most convenient.

The estimated cost of the entire construction, except the railway, is 450,000*l.*, and some capitalists have had the matter under their consideration, with a view to undertake the whole, including arrangements with the wharfingers, if the public bodies interested would pay a sufficient sum, the road being dedicated to the public use.

* † See p. 840, vol. xvii.

MODERN LONDON AND ARCHITECTURAL SCULPTORS.

DURING the growth of London we have had several "ages" marked by the use of peculiar materials.

Two thousand years or so ago, we had an age of mud-work and watling. Then the Romans came, and we may believe that we had for four centuries an age of brickwork. During the Saxon times there was an age of wood, superseded by the use of stone in the Norman days. Then came again the use of wood, which was continued, to a very great extent, until the Great Fire of 1666. Afterwards we had another age of brick, which lasted for nearly two hundred years. Then, for a short time, stucco was the rage: now, however, an age of substantial stonework is beginning, which promises to give us a lasting city.

From time to time we wander abroad, and look with wonder at the vast masses of buildings which are at present in the course of removal for alteration and improvement. This is the case, not only within the corporate limits, but throughout most other neighbourhoods which are about a hundred or a hundred and fifty years old.

The premises of the City warehousemen, the offices of the great bankers, and of insurance and other companies, now contrast curiously with the recollection of the dingy and inconvenient buildings which stood in many instances not twelve years ago.

The old-fashioned hostelry, the "Swan-with-two-Necks (Nicks)," its gabled roof and quaint-looking frontage, have disappeared, and instead a front of massive architecture is appearing. Here the railway carrier, notwithstanding the alterations, is busily pursuing his work. Shops, and places of less pretension, are also undergoing a great change. Note, for instance, the shop of a well-known butcher, not far from the Guildhall: the front, of stone, is composed of a large circular-headed window and entrance. At the centering of the former is a colossal lion's head: the head of the ox is equally classical, it would have harmonized as well with the general design, and have been more appropriate. It is surprising to look in all directions at the works of magnitude which are going forward above the surface; and now the earth below is being troubled, and soon in all directions thousands of passengers will be rolled along beneath the crowded footpaths and roadways.

Most wonderful are the phases of London: no man can fathom its varied depths, its glories, and its shame.

It would be interesting if we could get an account of the sums which have been spent even within the last ten years on the building of new houses, churches, prisons, and other institutions, within the metropolitan district; the cost of the alteration of shops and publichouses: the latter alone would amount to an extraordinary sum. Some rough estimate might be formed of the amount of capital expended within the metropolitan district in the way above mentioned, and in the construction of sewers and roads: the total would be startling.

Seeing the massive and solid manner in which the bulk of the buildings within the City are being raised, and that they may be expected to remain for a long time to come as examples of the skill and taste of the present age, it is important that these should be satisfactory. The general appearance which the streets are putting on is more harmonious and picturesque than might have been expected. The broad design of many of the buildings is good, and some will bear examination in the decorative details. In many instances, however, as we have before said, the sculptures, instead of being ornamental, are actually blemishes, and these on buildings which have cost thousands of pounds.

That the necessary ability is to be had is certain. How is it, then, when imposing buildings have been planned evidently without consideration of expense, that those details on which so much depends should be slighted and made unpleasant to the sight? We could point out more than one building on which groups of allegorical figures have been placed, which are so distasteful in design and so bad in execution, that it must be absolutely an infliction for a person of only ordinary feeling for art to live opposite to them. Several circumstances concur to produce this. In some instances, perhaps, the architects do not sufficiently appreciate the value of excellence in the sculptural decoration of modern buildings. In others, so great is the hurry, that it is impossible to give proper effect and finish. But chiefly those who are putting up an important building are indisposed to a sufficient expenditure on what seems to them to be extra and unnecessary works. The details of the buildings of Greece and Rome have now a priceless value. The sculptures by Flaxman, introduced into his house by the late Samuel Rogers, brought more than their original cost; and, if proper ability were used, it would be the same in time with the decorations of the buildings of modern London.

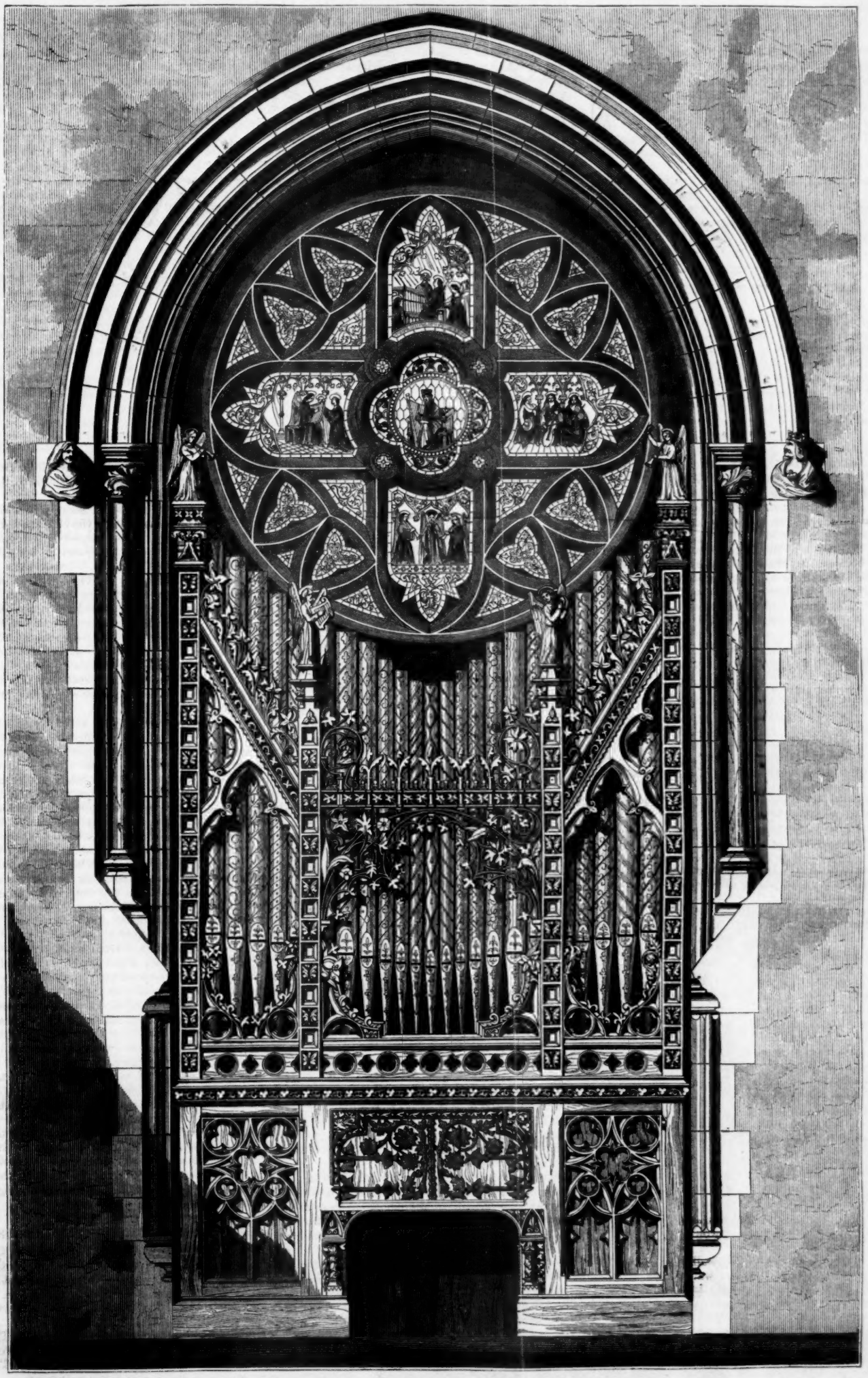
Up to the present time it is to be regretted that sufficient attention has not been given to architectural sculpture. The sculptors have not taken their right position. They have an important mission to fulfil in the progress of English taste; and it is to be hoped that before long they will be enabled to take their proper place amongst the artists of the land.

ORGAN, SHADWELL COURT, NORFOLK.

THE accompanying engraving represents the organ which has just now been set up in the great hall at Shadwell Court, Norfolk, the seat of Sir R. J. Buxton, under the direction of Mr. S. S. Teulon, architect. On a previous occasion we gave a view of the exterior of the building.

The woodwork of the organ-case is of oak. The metal work was executed by Skidmore, of Coventry; the coloured decoration by Fisher. The organ was built by Messrs. Gray & Davison.

The window at the end of the hall, seen above the organ, contains medallions of great composers, not exactly represented in the engraving.



THE ORGAN, SHADWELL COURT; NORFOLK.

LOCAL PORTRAIT GALLERIES.

A MEMORIAL, the only one yet raised to Admiral Blake, has been erected within these few days in the Courts of Assize at Taunton. It consists of a portrait bust of Blake, designed by Baily, and executed in the studio of Mr. Papworth, his son-in-law, with a pedestal, and an inscription from the pen of Mr. Hepworth Dixon. The design of the memorial is said to be well adapted to the place which it occupies, though it suggests the want of a companion bust, which might be fitly supplied by the other great Somersetshire worthy, John Locke.

A contemporary in alluding to the Blake memorial very justly observes that, "The erection of such monuments, while it illustrates our history *in situ*, has a tendency to promote provincial spirit in its worthiest form of emulation; and for its promotion of patriotic influences or its expression of the gratitude of posterity it deserves equally to be noted and encouraged."

We have before this suggested the usefulness of forming galleries of portraits of eminent townsmen in the halls, or some other proper place, in the provincial towns of the kingdom,—so that the inhabitants of such places might take visitors and their children, and say, pointing to such a collection,—"These are the men who have been born or reared amongst us." And if this be advisable in the provinces, it is no less so in the great metropolitan districts, which have grown into such vast proportions, and which are connected in various ways with men famous for their abilities. In the great districts of St. Pancras, Marylebone, Islington, Clerkenwell, and others, vestry-rooms, which, in a measure, answer the purpose of the guild-halls of the corporate, have been reared. Many of these are large in size, but by no means creditable either in their interior or exterior forms to modern architectural taste. In these places, however, thousands of persons assemble for various purposes, and there the effigies of men who had been an honour to the neighbourhood could not fail to have an inspiring and beneficial effect. In the chief portions of these vestry halls, however, there are no portraits or other artistic matters to break the flat uniformity of the walls; and yet what interesting collections might be formed at comparatively small cost; for, if an appreciation of such works were shown, many pictures of great value and interest in a general collection would no doubt be freely offered.

In the Clerkenwell session-house there are some very good pictures, but they chiefly consist of royal personages or distinguished statesmen who are not particularly connected with that locality—and yet what a gallery of Clerkenwell worthies might be gathered together. There is not one of these metropolitan parish halls which could not be usefully ornamented in this way.

Take any of the parish histories and glance at the names of resident inhabitants whose career would be worthy of imitation. Let us look at the first of these which comes to hand, Robinson's "History of Stoke Newington,"—a place which is still suburban, but which is rapidly increasing its population. Here lived, about the year 1710, Daniel Defoe: how profitable it would be if a portrait of this man—one of the most popular British authors—could be pointed to in the national schoolroom, or vestry hall. Would it not be instructive to mention that the far-famed author of "Robinson Crusoe" was the son of a London butcher; and so on, giving a sketch of his history, and what he did to make himself so celebrated?

Another distinguished resident of the same parish, though born at Hackney, was John Howard, the great pioneer of sanitary and social improvement, whose devoted life is worthy of the study of both old and young. The father of this public benefactor was also a London tradesman, who died when he was an infant, but left him in charge of guardians, who apprenticed him to a grocer. Howard came to Stoke-Newington rather before 1750, and lodged in the next house to Mrs. Wollaston: from thence he removed to the eighth house from the Church, which was kept as a lodging-house by Mrs. Sarah Lardeau—the lady to whom he was afterwards married. What a fine subject for expatiation, *apropos* of his portrait on the wall, would Howard be!

The memory of another choice spirit is connected with Stoke-Newington. Here Isaac Watts wrote a large portion of his beautiful works; and here he died on November 25th, 1748, in the 75th year of his age. He was buried with great solemnity in the dissenting burial-ground of Bunhill-fields. Since then a small monument has been erected to his memory in Westminster Abbey. But how strange it is that in a position where a monument might be so well placed, close to the resting-place of John Bunyan and Daniel De Foe, one to Isaac Watts should not have been raised long since.

We have before referred to this neglect, which is not creditable to us. But our present object was merely to point out a few examples showing the interest which such local portrait-galleries, both in London and the provinces, could not but excite in connection with the histories of the local worthies, so brought face to face again, as it were, with young and old, in the present and coming generations.

BUILDERS' CUSTOMS.

SHORING ADJOINING PREMISES.

A PROBLEM, of considerable importance to all connected with the building profession throughout the United Kingdom, has been for a lengthened period in process of legal solution before the Court of Common Pleas and a special jury at Dublin. In the abstract it is simply this,—is a builder who contracts for the taking down and the rebuilding of a house or premises, with one on either side thereof, bound to protect by all necessary shoring, bracing, strutting, &c., the adjoining houses?—and does he, by reason of neglect, or insufficiency of skill in so doing, incur a responsibility?

Another question, bearing materially on this, suggests itself as regards the practice of architects in inserting a clause in their specifications, that the contractor is to provide for such precautions; and again, assuming that there is *no* special agreement between the client and the contractor, is it the *custom* of the trade to adopt the necessary measures, in its absence; and must the latter be responsible for the consequences? The case to which we refer is that of "Kempston *v.* Butler," before mentioned in our pages, the plaintiff being the proprietor of a house of business, in Grafton-street, Dublin, and the defendant the contractor for the taking down and rebuilding of the adjoining premises, during which plaintiff's house fell, destroying all his goods, furniture, &c. The defendant acted in the double capacity of architect and builder: there was no specific agreement as to the protection of the adjoining houses, and therefore the chief question devolved on "the custom." At the first hearing of the case last November, the plaintiff was non-suited on a technicality: at the second, after evidence on both sides had been fully entered into, and counsel on both sides had advocated their respective client's cases, during five days, the jury disagreed, *six* to *six*, and were discharged without a verdict; and at the third—last term—with substantially similar evidence as before, they found a verdict for 750*l.*! with costs, damages being laid at 7,500*l.*!

Does such a custom universally exist? If so, is it one of obligation or of courtesy? And if not an obligation, why should not the trade unanimously disavow it?

Assuming that to a certain extent it does exist where precaution is practicable, should it apply to all cases, however great the difficulty, and however dilapidated the premises, when all prudential measures would be unavailing? and, apprehensive of a consequent responsibility, should a builder decline all interference with premises so circumstanced, and should a proprietor be precluded from rebuilding? These general questions involve serious considerations worthy of attention and a definite understanding; for though "the law" may be with the builder—as impressed by Sergeant Fitzgibbon, Q.C., in the case alluded to,—"the custom" will, to a great extent, influence the jury in a verdict.

THE LIVERPOOL ARCHITECTURAL SOCIETY.

THE annual excursion of the members of the Liverpool Architectural Society and their friends took place on Monday, 2nd instant, on which occasion the ruins of Furness Abbey were visited. The aid of Mr. Paley, of Lancaster, architect, was of great value to the excursionists.

After the inspection of the abbey, the excursionists assembled in the Furness Abbey Hotel, where dinner was provided. The chair, in the unavoidable absence of Mr. James Hay, the president, was occupied by Mr. W. H. Weightman; and the vice-chair was filled by Mr. Wm. Stubbs, one of the vice-presidents.

In giving the toast of "The Army, Navy, and Volunteers," the Chairman remarked that the volunteers had added another safeguard to the kingdom, and that he was glad to know the society numbered many volunteers amongst its members.

Mr. C. O. Ellison, in responding, gave "The Profession," coupling with it the name of Mr. Paley.

The Chairman proposed the toast of "The Visitors," coupled with the name of Mr. Golding, from whom it elicited an appropriate response. He proposed the toast of "The Liverpool Architectural and Archæological Society," coupled with the name of Mr. J. A. Picton. Mr. Picton, after replying, proposed "The health of Mr. James Hay, the president," who was unavoidably absent. Mr. John Hay acknowledged the toast, and afterwards proposed "The Associate Members," responded to by Mr. Frodsham.

The health of the chairman was next drunk; and Mr. Sherlock gave "the Secretary, Mr. W. H. Picton," which was suitably acknowledged by that gentleman.

STATUES AND MONUMENTS.

A COMMISSION having been given by the present Earl of Ellesmere to Mr. Noble, the sculptor, for a tribute to the late earl, the artist has completed a recumbent statue, at full length, with the arms placed crosswise on the breast, the body being folded in the robes of a knight of the garter. The figure is rather over life-size, and is cut from a solid block of the finest Carrara marble. The statue will be conveyed to Worsley, the family seat, near Manchester.

The committee for raising a memorial to the late Henry Hallam, have resolved to erect a full-length statue of him in St. Paul's, an eligible site having been offered by the Dean and Chapter.

For some time past several influential gentlemen connected with the parish of Islington, have been desirous of erecting a monument to the memory of Sir Hugh Myddelton, who brought the New River through the parish to the metropolis, and in the prosecution of which gigantic work it is well known he embarked all his vast fortune. It has been resolved to erect a drinking-fountain in some conspicuous part of the parish, and on it to place a statue of Sir Hugh. The most appropriate site for the monument, it is considered, would be on Islington-green, on the spot on which the old watch-house stands. Sir S. M. Peto has promised to present the statue to the parish. A full committee has been appointed to assist in carrying out the object in view.

A tablet has just been erected in St. John's Church, Moulsham, to the memory of the late Mr. Henry Guy. The design is by Mr. James Lockyer, architect. The white marble slab terminates at the top in a pinnacle, ornamented, and around the whole runs a mosaic border formed by inlayings of black marble. The centre is occupied by a long inscription to the deceased.

The *Darke* monument in the Penzance Cemetery is to be in the form of a Gothic spire, carved and crocketed, and surrounded by an iron railing. It will stand upon a base 9 feet square, and will be of Lamorna granite. Plans have been prepared by Mr. Matthews, the borough surveyor, and much of the material and work will be furnished gratuitously or at a low price.

A statue to James Hogg, the Scottish poet, popularly known as the Ettrick Shepherd, has been publicly inaugurated on the banks of St. Mary's Lake, at the head of the vale of the Yarrow, one of the finest and most picturesque streams on the Scottish border. There was a large assemblage at the inauguration, at which three daughters of the poet were present. Mr. Glassford Bell, one of the Sheriff-Substitutes of Lanarkshire, delivered the inaugural address. The statue of the poet is rather above the life-size, and represents him seated on some "grassy knowe," with his shepherd's staff in hand, and his grey hill plaid thrown carelessly over his shoulder. In his left hand is a scroll bearing an inscription,—"He taught the wandering winds to sing." On the panels are inscriptions from his own works. At his feet lies his dog "Hector." The block from which the figure has been chiselled out is of fine grained white sandstone, and was procured *gratis* from the Duke of Buccleuch's quarry at Whita-hill, near Langholm. Mr. Currie was the artist.

At a meeting of subscribers to the fund raised to erect a memorial to the late Rev. Principal Macfarlan, of Glasgow, held in the Council Chambers of that city,—the Lord Provost in the chair,—it was reported that a site had been obtained for the monument in the Necropolis, and that Mr. J. A. Bell, of Edinburgh, architect, had prepared a design, not to exceed 700*l.* in erection. It is in the form of an ancient cross, ornamental in details. It will rise 50 feet from the surface, is to be 11 feet square, and built of

Binny stone. The site is on the crest of the Necropolis-hill, a little to the south-west of John Knox's monument.

CHURCH-BUILDING NEWS.

Southport.—Christchurch has just been re-opened after extensive alterations: the walls have been taken down, the roof supported on iron columns, and side aisles added. The galleries have also been thrown back and widened. Additional sittings have thus been provided for about 400. The work has been executed by Messrs. Richard Wright & Son. A stained-glass window has been presented to the church by Mrs. Edward Rimmer, in memory of her father, Mr. Wright, builder. The subject chosen is, "Job in the days of his prosperity," as described in Job, xxix. 11, 12, 13.——Messrs. Wright have also obtained, by competition, the contract for pulling down and enlarging St. Cuthbert's Church, the parish church of Southport. All that now remains of the original structure is the spire and eastern wall. A new roof and new galleries are to be added, and additional sittings, to the number of 500, obtained. A subscription has been raised for the purpose of placing in the eastern window a testimonial stained-glass window, to the Rev. Charles Hesketh, the rector of the parish.——The enlargement of Trinity Church has also been entrusted to the same builders. The plans prepared by Mr. W. Culshaw, of Liverpool, contemplate widening the church nearly 30 feet, and lengthening it 36 feet, adding a new tower and spire 120 feet high. The new seats will hold about 720 people. In this rapidly-increasing town and favourite watering-place, the demands for extra church accommodation have necessitated these enlargements, and it is now contemplated to build another church in the town.

Louth.—At the first meeting of the commitee for the restoration or rebuilding of the parish church of Fotherby, a proposal was made "That Mr. James Fowler, of Louth, be the architect to the committee." To this an amendment was submitted "That Mr. James Fowler and Mr. Charles Ainslie, of London, be joint architects to conduct the restoration of the church." The amendment having been negatived, the original resolution was carried. It was also resolved that Mr. Fowler be instructed to prepare plans for the restoration and rebuilding of the nave and tower, and reseating the interior, with an estimate of each; also to prepare a plan and estimate of a vestry, about 10 feet 3 inches square, to be placed on the north side of the chancel, or elsewhere adjoining the church.

Ridlington (*Rutland*).—Ridlington church has been re-opened, after having undergone a restoration. The church was in a very dilapidated and unsafe condition, when the Rev. C. A. Hay, having entered upon the living, set about the work of restoration. Mr. Henry Parsons, of London, architect, received instructions to examine the fabric, which was found in a very unsatisfactory condition, and Mr. Halliday, of Greetham, was asked to do the work without any competition, at the estimate of 806*l.* The architect has preserved ancient relics. The nave is of three bays. The pillars on the south side are circular, with moulded caps and bases,—on the north side, octagonal. The carving was executed by Mr.-Matthew Irving, of Leicester.

Boyton (*Wilts*).—The parish church of Boyton has been restored and re-opened. In the old church, at the west end, now rebuilt, says the *Wilts Mirror*, there were two flat Norman buttresses, showing the antiquity of the church. Beneath the pavement of the tower a low black sepulchral slab was discovered, the style of carving upon which is remarkable, and would indicate an antiquity prior to the Conquest. The ancient font of the church, placed in front of the Manor House, discovered under the floor of an old cottage, partakes of the same very rude antiquity. The state of the chancel, the oldest part of the existing building, was lamentable. The walls were above a foot out of perpendicular, broken bricks, rotting pews of gigantic height, windows broken and begrimed with damp, a hideous plaster roof falling upon the worshippers, such was the aspect of this part of the building, the date of which might be fixed at about 1240. This part of the building has been restored: the roof is similar in formation to that of Ely Cathedral. The north wall is wholly new. The eastern window is in keeping with the rest of the chancel. The east window, by Mr. A. Gibbs, represents our Lord's Crucifixion, with the types of resignation—the Virgin on one side,—and of Love and St. John on the other. The east lancets are memorials to the Rev. S. Routh, rector of Boyton, presented by his family. The north-west lancet contains an ancient piece of glass, with the arms of Sir Alexander Giffard, the Crusader, whose tomb is in the church. The pulpit is of stone. The arch separating the chancel from the nave was cut off at the top for about 8 inches by a flat plaster nave roof, which exceeded even the chancel roof in deformity. The gable has been raised about 16 feet, and is now as nearly as possible at its original height. The old roof has been gradually let down, as the ends of the beams decayed, until it became nearly flat, with just enough pitch to cause the rain to run off.——The Warminster Chapel, containing the tomb of the Giffards, has been restored. Under the slab at the entrance, a headless skeleton, probably that of the last of the Giffards in Edward II.'s reign, was found. The west and east windows have been restored, the rose windows with glass, by Messrs. Horwood, of Mells. The top circles contain the arms of the sees of York, Worcester, and the family coat of Giffard, the Crusader. The next triplet contains the *rebus* or symbol of each brother, the crozier with W. G., for Walter Giffard; G. G., for Godfrey Giffard; and the mitre to mark the Bishopric of Worcester, the Red Cross of St. George, the Standard of the Crusader. The other triplet contains the later descent of the Manor—the Lambert, Benett, and Fane coats. The centres of the large quartrefoils contain emblems of the Knights of the Temple, the Holy Lamb, the Angels at the open tomb, and St. George of England. The east window in the chapel, like the west or rose, partakes of a mixture of English and Decorated architecture. The glass (by Mr. A. Gibbs, of London) is a memorial of the ministerial connection between Mr. Fane and the parishioners of Warminster. The chapel has been mainly restored by their liberality. The centre light contains the Charge to St. Peter,—the other two, St. John Baptist, the Preacher of Repentance, and St. Paul, the Preacher of Faith: above are the four Evangelists and the symbols of the Passion. The south windows are all memorial,—the centre one presented by Mr. T. H. Wyatt, the diocesan architect. The nave is the latest part of the building. The east window has been moved from the chancel and placed on the western gable. The roof replaced a flat plaster roof about a foot below the point of the arch. The south window, which replaces a ruinous doorway, has baptismal references. The west window, of Mells manufacture, contains the arms of her Majesty, of the Lord Bishop, and of Magdalen College, the patron of the living. The architect of the restorations was Mr. T. H. Wyatt; the builder, Mr. W. Barnden; mason, Mr. Trap; plasterer, Mr. Butcher; painter, Mr. T. Harris; master masons, John Turner and William Handcock; master carpenter, John Grist; clerk of the works, Mr. John Harding. The church has been restored at a cost of about 2,000*l.*

Belgrave (*Leicester*).—The Chancel of Belgrave Church is about to be restored, from plans prepared by Mr. Evans Christian, of London. The tender of Mr. B. Broadbent, according to the *Leicester Advertiser*, has been accepted by the Ecclesiastical Commissioners for the carrying out of the work.

Moorhouse (*Notts*).—A new Church is to be built for the small parish of Moorhouse, at the cost of the Speaker of the Commons. Mr. B. Broadbent, of Leicester, is to carry out the works. Mr. Henry Clutton, of London, is the architect; and the style adopted is Continental Gothic.

Rochdale.—The chief stone of St. Martin's Church, Castleton Moor, has been laid on Brunt Hill. The cost of the church is estimated at 3,000*l.* Mr. Ernest Bates, of Manchester, is the architect; and the contractor for the stonework, for 1,760*l.*, is Mr. Edmund Taylor, of Rochdale; and Mr. John Mills has undertaken to do the woodwork for 650*l.* The Early Decorated is the style chosen for the church, which consists of a nave, aisles, north and south transept, and chancel. In the north-west aisle a tower will be erected, which will be surmounted by a spire, rising to a height of 140 feet from the ground. The stone used for dressings will be from Summit, and the tracery will be from Halifax. The interior of the church will be fitted up with red deal, the seats open and stained, and the roof of the same material. There are to be no galleries, and the church is to accommodate 600 people, 250 free. The building was commenced in October, 1859, and, it is expected, will be finished by November next.

Bradford.—The work of altering and restoring the parish church will shortly be begun, Mr. Thomas Hill, joiner and builder, having received the contract. The "faculty," authorising the removal of the west gallery and the altering and removing some of the pews in the body of the church has been received. There is a fair prospect, says the local *Observer*, of such an arrangement being made with pew owners in the east gallery as will result in the removal of that ugly and unsightly object. It is intended to re-hang and elevate the bells in the old tower.

Montrose.—A new Free Church has been opened in Castle-street, Montrose. It is capable of accommodating 550 sitters. Mr. Henderson, of Edinburgh, was the architect. The cost, including the price of the site, was 1,400*l.*

PROVINCIAL NEWS.

Rushall (Staffordshire).—The tender of Mr. E. Spencer for the erection, at a cost of 1,429*l.*, of a police station at Rushall, has been accepted.

Trysull (*Staffordshire*).—The new workhouse for the Grisdon Union has recently been finished. It was built to accommodate 120 inmates. The site is an elevated one, near to the village of Trysull, and the buildings form a conspicuous object. They are of red brick, banded with blue, and roofed with tiles. In plan they comprise three distinct groups. The front is appropriated to the board-room, clerk's office, vagrant and receiving wards, &c. The main or central group, with a frontage of 155 feet, accommodates the various classes of healthy and more permanent inmates, the females being on the left, and the males on the right of the master and matron's residence, which forms the centre of the range, while the third group is formed by the infirmary, and each group is divided by the yards of the respective wards. The water supply, contracted for by Mr. Deeley, of Dudley, is obtained from a well sunk on the premises, and pumped up to a wrought-iron tank, on the top story of the main buildings, whence it is laid on to the lavatories, waterclosets, &c. The works, including fittings, have been carried out by Mr. Heveningham, at a cost of 2,595*l.*, from the design, and under the superintendence of Mr. George Bidlake, of Wolverhampton, architect.

Leicester.—The following tenders for the various work required in rebuilding the Infirmary were accepted:—Stonemason's work, Mr. Firn; carpenter and joiner's, Mr. Clifton; bricklayer's, slater's, &c., Mr. Collins; plumbing and glazing, Mr. Fozzard; ironfounder, Mr. Richards; painter, Mr. Haynes.

Doncaster.—The tenders for the erection of six almshouses, four of which are under Stock's trust, in the Holmes, having been opened, Mr. Taylor, who is at present engaged in extensive alterations at the Turf tavern, was declared the successful competitor, at the sum of 600 guineas. Mr. Butterfield is the architect.

DRINKING-FOUNTAINS ASSOCIATION.

A CONVERSAZIONE in furtherance of the objects of the Free Drinking-Fountains Association was held in St. James's Hall, on Thursday, July 5. The Earl of Shaftesbury took the chair. Dr. Lankester made an address on the qualities of the water of the metropolis, and Mr. John Bell read a paper on "Art," connected with the drinking-fountains. It is to be hoped that better council on art-questions will now prevail in the Association.* Various specimens of fountains were exhibited, as was also a very remarkable drawing by Mr. George Cruikshank, illustrating "The social drinking customs of society." A committee has been appointed to obtain subscribers to an engraving of this work and assist in the production of a large picture of it to be painted by the artist.

SCHOOL-BUILDING NEWS.

Southampton.—The foundation stone of Holyrood National Schools has been laid. The site of the building is in the Warden's garden, "God's House," and has been granted by the Provost and Fellows of Queen's College, Oxford. The contract for these schools, says the *Hampshire Advertiser*, has been taken by Mr. John Gambling for 600*l.* The girl's school, which is on the ground-floor, is 40 feet by 16 feet, and, together with an adjoining class-room, contains space for about 100 girls and infants. The boys' school, together with a class-room at the end, is 40 feet by 16 feet, and is intended to hold about forty scholars.

Wombourne (*Staffordshire*).—The parochial schools at Wombourne have been completed.

* A correspondent objects that the water supplied to the fountains in London is not cool and pleasant tasted, and thinks the Society should set itself to obtain *spring* water. We have not heard the objection before.

They are built from the design of Mr. George Bidlake, of Wolverhampton, architect, by Messrs. Hartland and Addenbrooke, and consist of girls' school-room, 39 feet 6 inches by 18 feet; boys' school-room, 39 feet 6 inches by 18 feet, with class-room, 14 feet by 12 feet, to each, and infant school, 30 feet by 18 feet. A teacher's residence, with additional accommodation for an infant mistress, is built on the south-east side of the schools. They are of red brick, with bandings of blue brick, and Bath stone dressings. The rooms are ceiled to the back of the rafters, which are stained and varnished, and the roofs are covered with tiles and plain cresting. The cost of the buildings, including boundary and fence walls, and forming play-grounds, has been 1,275*l.*

Birstall (*Leicester.*)—The building of Birstall schools, upon plans prepared by Messrs. Millican & Smith, has been commenced. Mr. Firn, of Leicester, is contractor for the stone work, &c., and the carpenter is Mr. Robinson, of Barkby.

COUNCILS OF CONCILIATION BILL.

THE Bill, entitled "Masters and Operatives," is now before a select committee of the House of Lords.

The committee is composed of the following peers:—Lord Chancellor, Lord Cranworth, Earl Granville, Lord St. Leonards, Earl Derby, Lord Brougham, Lord Overstone, Lord Ravensworth, Lord Kingsdown, Lord Belper, and Lord Wensleydale.

The report from the select committee of the House of Commons on "Masters and Operatives," together with the proceedings of the committee, minutes of evidence, appendix, and index, have been communicated to the House of Lords, pursuant to a message of Tuesday last, and ordered to be printed.

The select committee held its first sitting on Monday, the 9th, and will meet again on Friday.

Lord St. Leonards, in moving the second reading of this Bill, in the House of Lords, last week, said it was not anticipated that it would directly operate against such a strike as had lately taken place in London; but it was hoped that it would prevent strikes taking place at all. It was impossible to overrate the enormity of the evil of strikes, or the urgent necessity for a remedy. If the relation between masters and operatives was fairly looked at, it would be seen that the operative was really a limited partner in the concern, drawing his share of the profits in the shape of wages, although not responsible for the liabilities of the firm. It was obvious, therefore, that he had a direct interest in the continuance of the business, and that mutual confidence and regard between the employer and the employed were essential to the interests of both. Lord Ravensworth moved that the Bill be read that day six months. He believed that a court of petty sessions would give more satisfactory judgment than a court of conciliation under this Bill, which was hastily prepared and ill digested, and would probably be attended by disastrous circumstances. The Earl of Derby supported the motion for a second reading, but believed the Bill would require serious examination. Lord Granville recommended a select committee, in which recommendation the Lord Chancellor and Lord St. Leonards concurred, and the amendment was withdrawn, and the Bill read a second time.

THE NINE-HOURS MOVEMENT.

A MEETING of the building trades was held in St. Martin's Hall, Long-acre, on Wednesday evening, the 11st instant, in furtherance of this object. The chair was taken by Lord Robert Montague, M.P. There was a very numerous attendance.

The Chairman, in the course of his address, said,—He felt sure that no acrimonious language would mar what had hitherto been conducted with great temper and discretion. There were two questions before them, but they had been mixed up and confused by those interested, who had raised the cry that they required ten hours' wages for nine hours' labour. There were, however, two questions for consideration. The first was the fair and proper duration of daily labour, and the second was the amount of wages they were to receive. Now, the question of labour was one thing and that of wages was another. The first question was, what was a fair day's wages? Lord Cranworth had thought to settle the question by laying it down that wages should be the subject of a free bargain between the employers and the employed. But how could there be any free bargain when the capitalist could close his works and still revel in luxury and enjoyment, while the workmen must submit to any terms, or pine away of starvation and die, both themselves and their families? Then they were told that wages must be regulated by the principles of political economy. The pet maxim of political economy was to buy in the cheapest market and sell in the dearest market. But should the labour of man be subject to the higgling and bargaining of the market? Was labour to be dealt with like cotton? As to the second part of his subject—the quantum of daily work which a man ought to perform. Many of them had an hour's walk to work, and the same to return home, and they often could not help that, because they could not always change their residences from time to time so as to be near their work. Then they often had to have their meals away from home, and it was only fair to say that nine hours' work represented twelve hours' labour.

Mr. Cremer (a carpenter), moved the first resolution,—"That we believe our request for a reduction of the hours of labour, justified by the first principles of political economy, and that by the increased skill and rapidity of manipulation acquired by the workmen the necessity for the ten-hours system has passed away, the building operatives, in conjunction with machinery, being enabled to produce sufficient for the requirements of society by labouring nine hours per day."

The speaker adduced extracts from the works of Adam Smith to refute the statement of Lord St. Leonard's recently made in the house of Lords that the demand for the reduction of the hours of labour was not in accordance with the principles of political economy. He further asserted that labour was not a marketable commodity, and ought not to be treated as such. Mr. Pitt, painter, seconded the resolution, and recommended organization, after which the resolution was carried unanimously.

Mr. Howard, bricklayer, moved the second resolution:—"That the meeting regrets the late refusal of the master builders to discuss the nine-hours question with a deputation from the men, believing such refusal to be inimical to the interests and position of the employers, and calculated to engender embittered feelings between themselves and their workmen at a time when every effort should be made to render the interests, welfare, and progress of both identical. Being convinced that the concession we seek is necessary to the preservation of our physical and the expansion of our intellectual and moral powers, we pledge ourselves to press our claim until it has been conceded."

Mr. Major, a plasterer, seconded the resolution.

The resolution was then agreed to.

Mr. Potter then moved a vote of thanks to the chairman, which was carried amidst loud applause.

THE "BUILDER'S" LAW NOTES.

Partnership.—Breach of Trust.—Where one partner committed a breach of trust, it has been decided by the Master of the Rolls that the other partner has a right to dissolve the partnership; such dissolution to take effect from the date of the notice of the dissolution.—*Essell* v. *Hayward.*

Metropolis Local Management Act.—A District Board, under the above-mentioned Act, may assess a parish to an amount greater than is required for the outlay within its own limits, if such assessment be by a general rate throughout the district to meet the expenses of the district at large. It is, however, competent for the Board, in the exercise of its discretion, in cases where the outlay is for the exclusive benefit of a part of a district, to exempt from the rates that part which enjoys no benefit; and the Court of Queen's Bench, in a recent case, refused to interfere with such discretion.—*Parish of St. Botolph* v. *The Whitechapel District Board.*

Wills.—Shakspeare's House.—Mr. John Shakspeare, by will in 1856, bequeathed to his executors 2,500*l.* out of his personal estate, "to be laid out by them as they shall think fit, with the concurrence of the trustees of Shakspeare's house, in forming a museum at Shakspeare's house, in Stratford, and for such other purposes as they shall think fit for giving effect to my wishes." This bequest was held by Vice-Chancellor Wood to be void for uncertainty, and the same opinion was held by the Lord Chancellor and Lords Justices on appeal.—*Thompson* v. *Shakspeare.*

Shareholder.—If the entry of a person's name upon the register of a company be sufficient to identify him, a mis-spelling of the name will not release him from liability as a shareholder. An acceptance of shares by a person in writing, in the manner prescribed by the company's deed, must be proved in order to fix him as a contributory, and the fact of his name being on the registry is not of itself sufficient.—*Re Olerenshaw.*

STATE OF BATTERSEA-PARK.

SIR,—A few days ago I strolled through Battersea-park, and saw the beauties of nature and art lately introduced there. The swampy fields of days happily gone by, where the lower class of Londoners were wont to spend the Sabbath in frivolity and crime, now converted into a splendid garden, looked truly beautiful: the once silvery Thames flowed by in its sombre blackness, yet a shade brighter than it did last year.

In my ramble from enchantment to enchantment in this lovely garden, I was forcibly reminded of a picture which was in your journal a few weeks back (an east-end tea-garden, with a black ditch skirting the edge); for here is a ditch black and stagnant, running, or I should say standing, *in* the gardens, surrounded by flowers, shrubs, trees, and in many places hidden from view by long grass. Little children played and gambolled, attended by their parents or nurses, out for the good of their health, each enjoying the most blissful ignorance.

But, although the cesspool (for such it is) was almost covered up, its disagreeable odour rose most painful to my sensitive nasal organ.

Should the ranger or commissioners fail to profit by the remarks of your correspondent C. S., many fond mothers may regret taking their children to this spot. A KNIGHTSBRIDGEITE.

CLUB CHAMBERS FOR CLERKS.

SIR,—With reference to a "City Clerk's" *social want*, I would repeat the following suggestion, offered some fifteen years since:—

Say 100 bachelor clerks (no great number out of upwards of 7,000) subscribe each their 50*l.*

This amount will purchase the land, create a club-house, provided with spacious coffee-room, library, smoking-room, lavatories, bath-room, water-closet and cloak-room, separate sleeping rooms, kitchen offices, with wash-house, laundry, &c., &c.* Rent to each, say from 3s. per week; washing, from 1s.; food, from 3s. 6d. per week, provided they dined out.

The advantages are such, that it has been a matter of great surprise that there should not have been some ten or twenty established; but the fact is, our young men, with some of the middle-aged, are so fast, that the accumulation of 50*l.* is difficult to attain. F.

RECENT PATENTS CONNECTED WITH BUILDING.

MACHINERY FOR CUTTING AND DRESSING STONE.—*A. V. Newton*, Chancery-lane, London. A Communication. Dated 21st December, 1859. The blades, whatever may be the form of their teeth, are made thicker in cross section at their cutting edges than at the back. The teeth may be chisel-shaped, or the saw edges may consist of chisels carried between metal bands or plates. The kind of blade preferred is made with long, vertical, chisel-shaped teeth, the uppermost being set the most forward, and the others receding, so that when the saw commences to operate the teeth will come into action in succession, instead of simultaneously. The invention also includes several arrangements of mechanism, in which these blades are employed for cutting and dressing stone. The invention cannot be described in detail without reference to the drawings.

A KILN OR OVEN FOR BURNING BRICKS, TILES, &c.—*A. V. Newton*, Chancery-lane, London. A Communication. Dated 22nd December, 1859. The kiln or oven is built of an annular form, and, by preference, sunk in the ground, so as to leave the roof only exposed. This inclosed annular space is divided radially into compartments by sliding doors, and each compartment is connected by a radial flue with a concentric annular smoke chamber which surrounds the central chimney-shaft, and is connected therewith by short lateral flues. Dampers are provided for shutting off communication between the radial flues and the smoke-chamber, and the compartments into which the kiln or oven is divided are closed at top, and fitted with openings which may be shut when required.

REMAINDER OF WORKS SELECTED BY ART-UNION OF LONDON PRIZEHOLDERS.

From the Royal Academy; 20l. and upwards.—An English Pastoral, by H. B. Willis, 210*l.*; The Nile Raft, F. Dillon, 120*l.*: Chastity (marble statue), J. Durham, 105*l.*; The First Step in Life, Mrs. E. M. Ward, 75*l.*; Volunteer Movement in the Studio, J. Ballantyne, 63*l.*; The Sexton's Sermon, H. S. Marks, 63*l.*; Fisherman's Cottage, J. Cassie, 50*l.*; Loch Faed Bute, J. F. Buchanan, 31*l.* 10s.; The Sister's Prayer, J. A. Fitzgerald, 20*l.*; A Cottager, Wanstead, J. W. Haynes, 25*l.*; A Fisherman's Hut, W. Hemsley, 47*l.* 5s.; Going a Milking, W. Lucas, jun., 20*l.*

From the Society of British Artists.—Summer on the Thames, W. W. Gosling, 100*l.*; River View, J. C. Ward, 60*l.*; A Sea Breeze, J. Henzell, 35*l.*; Fishing-boats off Lundy Island, W. West, 35*l.*; A Scene in Brittany, E. J. Cobbett, 30*l.*; A Shepherd's Home, E. A. Pettit, 30*l.*; Mounts Bay, G. Wolfe, 45*l.*; A Lane Scene, J. C. Ward, 25*l.*; Girl with Blackberries, J. T. Peele, 30*l.*; On the River Looe, W. Pitt, 27*l.*; at Mountreaux, J. P. Pettitt, 25*l.*; St. Michael's Mount, G. Wolfe, 25*l.*; Pont Aber, Cowarch, J. Steele, 28*l.*; On the Tavey, W. Williams, 20*l.*; At Willesborough Lees, J. J. Wilson, 20*l.*; The Daughter of Jerusalem, J. Bouvier, sen., 28*l.*; The Warrener's Boy, J. Duvall, 15*l.* 15s.

From the Water-colour Society.—Venice from the Rialto, by W. Callow, 70*l.*; Moel Shabod, S. P. Jackson, 42*l.*; Auld Robin Grey, Mrs. Criddle, 30*l.*; Clovelly, S. P. Jackson, 30*l.*; The Fountain and Red House Hotel, Treves, J. Burgess, junior, 15*l.*

From the New Water-colour Society.—Interior of the Cathedral of Cefalu, Carl Werner, 78*l.* 15s.; Port Madoc, H. C. Pidgeon, 40*l.*; a Salmon Leap, D. H. McKewan, 52*l.* 10s.; Place Pucelle, G. Howse, 40*l.*; Wha's-bridge on the Dudden, D. H. McKewan, 31*l.* 10s.; Esa, Coast of Nice, T. L. Rowbotham, 30*l.*; Toll demanded, H. Warren, 21*l.*; At Weir Gifford, P. Mitchell, 25*l.*; An Old Mill, Eskdale, D. H. McKewan, 14*l.* 14s.; Stringing Egg Shells, Emily Farmar, 15*l.*; View on the Swale, W. Telbin, 36*l.* 15s,

* Scarcely.

From the Institution of Fine Arts.—The Close of a Summer Day, G. A. Williams, 25*l.*; Head of Loch Lomond, J. T. Walton, 20*l.*; The Haunt of the Kingfisher, J. Adams, 30*l.*; Carrickfergus Castle, J. Godet, 20*l.*; An Interesting Topic, H. King, 20*l.*; Ferreting, E. Tolley, 18*l.*; The Lake of Geneva, R. E. Tindall, 20*l.*

THE LABOUR-MARKET IN THE PROVINCES.

At *Liverpool*, the change of hours conceded by some has been introduced more generally. The reduction, however, has not been granted by one extensive firm, that of Messrs. Holme & Nicol, who are said to object more to the mode of application than the principle. They have the Free Library at Shaw's Brow in hand, but have been allowed time, under the circumstances, by the Library Committee.

The *Leeds* masons, as intimated, have followed the joiners by striking for objects similar to those just attained by the latter. The employers refuse to accept and sign a code of rules adopted by the men. The master builders have conceded to their bricklayers an advance in their wages of from 26*s.* to 27*s.* per week; and the strike which was apprehended in this department of the building trade is thus avoided. The men have also given twelve months' notice of their intention to ask to be paid by hour instead of by week.

The *Bradford* stonemasons' strike may be said to be at an end.

The *York* joiners are settling into good understanding with their employers, who have agreed to the advance in wages and reduction in Saturday time asked for.

At *Castleford*, says the *Newcastle Courant*, the workmen employed in its staple trade, that of glass bottles, have given notice to strike for an advance of wages, and the movement is general all over the district.

THE STATE OF THE RIVER THAMES.

On this important subject Dr. Letheby, in a report to the City Sewers Commissioners, says:—

In the spring quarters of the last two years I have had to report to you of the putrid condition of the river, and to discuss the circumstances which have attended it; but this year I am relieved from that necessity, for up to the present time the river has not been offensive. In point of fact it would appear from the analyses which I lately made of the water, and a comparison of them with the results obtained by Dr. Lambe and Dr. Bostock in 1828, that the river is now in its normal condition. At that time the water of the Thames at high tide at Lambeth and Blackfriars contained only about 27 grains of dissolved matter in the gallon, which is not much above the natural proportion of its constituents at from Teddington-lock to Wandsworth; and during the whole of the present year this has been nearly the proportion found in the water at high tide at London-bridge. Last month the highest proportion was 32 grains in the gallon, but at all other times of this year it has ranged from 24 grains to 27 grains in the gallon; and of these from two to four grains were organic. Last year, however, at this time the water contained 94 grains of soluble matter in the gallon, and the year before it contained nearly 144 grains, of which from 11 to 12 were organic. Little by little it went on increasing until it amounted in August and September to from 300 to 400 grains in the gallon, and during the whole of that time the river was most offensive. The source of these impurities I have already described—they were derived from the sea water and the stagnant sewers. A long continuance of dry and warm weather had so diminished the supply of water from the tributaries of the river, that the oceanic wave was not kept back to its usual confines, but advanced far upwards into the bed of the stream, and brought with it its organic and saline impurities. Then came the heavy showers which flooded the sewers and washed out the stagnant matters that the torpid stream had been unable to dislodge. In this way a large quantity of impurity was discharged into the river, for the proportion of solid matter in the storm sewage is often as much again as that in the sewage of dry weather. When these storms occurred at the flow of the tide, the foul matters were carried upwards by the stream, and were thus a cause of serious annoyance; while at other times they seemed to act in a beneficial manner upon the river by diluting and carrying the impurities seaward. The present state of the river has evidently been secured by the continuance of wet weather. In the month of May last year, the total rainfall in London was but 2 inches—whereas in the corresponding month of this year it has amounted to 3·7 inches. In June of last year, it was barely 2 inches, and of the year before, only 1·2, but in the three weeks of the present month it has been 4·6 inches. The wet days have also been more numerous, and therefore the supply of fresh water to the Thames more continuous. This is the principal circumstance which has characterized the present season, and it has manifestly been the principal agent in securing the normal condition of the river; for as regards the effects of temperature on the water, the differences up to the present time have not been so marked as to have exerted any important influence. At this time last year, and the year before, the Thames was very offensive, notwithstanding that the mean temperature of the water during the month of May was nearly a degree lower than it has been during the present year. The conclusions, therefore, to be deduced from these facts are, that the main causes of the putridity of the river are a great excess of sea water far up in the stream, and a large amount of organic matter from the stagnant sewers, both of which are due to a continued absence of rain, and to the sudden flushing of the sewers during the upper flow of the tide. A certain temperature is, of course, necessary to the putrefactive changes, for they do not progress with any remarkable activity below the temperature of sixty degrees; but when the heat of the water rises, as it did in June, July, and August of last year, to a mean temperature of seventy-two degrees, the changes are exceedingly rapid. There is an additional mischief at such a time from the decomposing mud upon the exposed banks of the river. Dr. M'William, of her Majesty's Customs, has so recently inquired into the effects of the river miasms, and has so clearly shown that they have not yet produced the mischief which was anticipated of them, that I need not here discuss this subject. Happily for us, there is evidently some condition wanted to make "this filthy river capable of generating cholera, or of forming a soil fit for the germination of the seeds of that disorder when introduced into it." But this is no argument for the neglect of sanitary precautions, or for disregarding every means for abating the noisome condition of the river. Nor is it a reason for temporising with the mischief, by resorting to any doubtful expedient that may merely serve as a disguise for the nuisance. Already I have reported on this matter, and have directed your attention to the uncertainty of the proposed plan for deodorizing the river by means of perchloride of iron. But since then I have ascertained that the perchloride is highly charged with a compound of arsenic, which is exceedingly poisonous. A sample of the liquid, furnished to me by the patentee, Mr. Dales, and described by him as the same as that used in the experimental inquiries for the Board of Works, has yielded from 296 to 297 grains of chloride of arsenic per gallon. If, therefore, the sewage of London were deodorized in the way proposed, there would be discharged daily into the Thames as much as 227 pounds of chloride of arsenic. I cannot tell you what would be the consequence of this, but it would be equivalent to casting into the river about one hundred weight and a half of powdered arsenic daily. It is true that the poison would be diluted with a large quantity of water, and with many millions of gallons of sewage, but a knowledge of this fact would afford no relief to our apprehension of danger, or to the anxiety that must be felt lest the accumulated effects of the poison might in the course of a very short time be dangerous in the extreme.

The report was ordered to be printed, and a copy sent to every member of the Corporation, as well as to the members of the Metropolitan Board of Works.

Books Received.

Handbook of the Mechanical Arts concerned in the Construction and Arrangement of Dwelling-houses and other Buildings. By ROBERT SCOTT BURN. 2nd edition. Blackwood & Sons, Edinburgh and London. 1860.

WHEN first published, this work was intended exclusively for the use of colonists and emigrants. Very considerable additions have been made in the present issue, to a great extent in the shape of extracts from "The Book of the Farm," so that, although still chiefly of value to settlers and others thrown on their own resources, it will be found useful as a skeleton text-book for the student at home. It is illustrated with 504 engravings, is clearly written, and is altogether a valuable little book.

Address to Trades' Unionists on the Question of Strikes. By MALCOLM ROSS, Bradford. London: W. Tweedie.

UNIONS amongst workmen are a fact of our times that must be acknowledged and received as a fact, however unwelcome to masters under its present aspects; but much can be done both by men and masters towards directing them into channels really useful to the working classes, without being so obnoxious and injurious to employers, to trade, and, though last, not least, to workmen themselves, as they have been. It is most unfortunate that unions should have sought to obtain unreasonable objects in objectionable ways, but we must not overlook the fact, that in the eye of some masters requests ("demands" they have too often assumed the shape of) neither unreasonable nor objectionable, in themselves, have been looked upon as both, and hence to be resisted. That some of the procedure of trades' unions has been both objectionable and unreasonable as well as extremely injurious, not only to the masters, but to the men themselves, it has not been left exclusively to either the masters or the periodical press to point out; for not a few of the most intelligent of the workmen also have done so with ability and cogency of argument and demonstration. In the threepenny tract under notice, Mr. Ross, who is himself a workman, severely reprobates one too frequent resource of a desperate kind by trades' unions in the attempt to benefit their members,—namely, strikes, with which, indeed, such unions have come to be regarded as almost synonymous in meaning, although there is really no necessary or essential connection between them, since it would, on the contrary, be much more consistent with the main purposes of these unions, that is, with the joint *interests* of the unionists, that resort should be very rarely, if ever, had to strikes, however beneficial it may be considered to hold them *in terrorem* over refractory or unreasonable masters.

Trades' union strikes, says Ross, are, in their nature and action, the most unjustifiable means which can be resorted to for the purpose of keeping the rate of wages at a high, or, if you like it better, an equitable standard, and for the following reasons:—

1. On account of their coercive character.
2. Because they inflict an irreparable injury on the morals and habits of workpeople.
3. Because of the injury they do to the general trade of the country.
4. On account of their natural and logical impotence, as manifested by their repeated failures.
5. Because they prevent better means being employed to elevate the people, for whose pretended benefit they are brought about.

As an example of those better means to which he alludes, and which he would like to see adopted by trades' unions, he adduces trades' union co-operative workshops and factories:—

"When trades' union co-operative workshops and factories," he remarks, "are in regular working order, the wages given there will, most propably, become a standard in each separate branch of trade. When working men capitalists have to compete with their goods in the general markets of the country, they will get to thoroughly understand what the wage-fund will allow to each workman, skilled and unskilled. They will be able practically to solve many problems as regards remuneration for labour and the requisite number of hours for work, which one-sided committees are scarcely qualified to do. They will then be in a condition to offer employment to those workmen who are disliked by masters, and to whose dismissal are owing many causes of contention, where they do not lead to combined strikes. Above all, they will be the most likely men to suggest wise remedies for grievances, whether they originate with the masters or the workpeople, since they will perceive that their own interests will be best upheld by the trade which they follow being least disturbed. Once let working men share in the profits of their own capital,—let them realize the idea of success being achieved by incessant application,—let them begin to practically understand the operation of the law of supply and demand, as it affects both the produce and the labour markets,—and it is more than probable that the evil day of strikes will have passed away, with all its attending miseries and workhouse associations.

What say you, shall you carry these suggestions out to their legitimate end? Then first of all use your great influence in staying the threatened renewal of the London strike in the building trades. Let the object for which that strike is again to be renewed, be worked out by the means, and in the manner, I have advised. In such a way, if you can prove that even eight hours' work per day is sufficient (and I do not see but what it yet might be!) to serve for all your personal and domestic requirements, let the change be so brought about that it will produce no suffering to yourselves or your fellow-creatures, and no injury to the trade and commerce of the country."

Nor are such means of turning trades' unions to really useful and beneficial purposes the only ones that suggest themselves: there are others, such as a system of emigration for behoof of the unemployed, by which means the employed unionists would not only benefit their fellow-workmen, whether unionist or non-unionist, but also themselves, by the removal of such surplus labour-hands from the field of competition with them for a share of the profits of the capital of the country. By a strange perversity, however, it so happens that because this was suggested by those opposed to strikes, an obnoxious face was put upon it by the unionists, who resisted the idea as derogatory to their class, instead of taking advantage of it as a benefit; and we should not wonder but that a similar fate awaits even the suggestion of co-operative work-shops and factories, as well as stores, which latter are being successfully carried out in the North of England, much to the advantage and comfort of the working classes there. In fact,

anything, however good and however beneficial to the workmen, is likely to be resisted that will interfere with the prospects of those who live upon their fellow workmen by the pernicious system of strike organizations.

It is most earnestly to be hoped, however, that dear-bought experience will now speedily open the eyes of the working classes to their true interests in such matters; and the little tract under notice is just an evidence of the working out of so desirable an end.

VARIORUM.

THE ninth part of "Ure's Dictionary of Arts, Manufactures, and Mines, new edition (Longman & Co.), chiefly rewritten and greatly enlarged, and edited by R. Hunt, F.R.S.," has been issued. It concludes the elaborate article on "Iron," and proceeds to the end of letter L, and of the second volume. The more important articles contained in this part are on Lead (an extended one, but not containing much practical information for our professional readers), and on Lamps, Light-houses, Leather, &c. We need not repeat the favourable opinion already expressed, by us as well as others, in reference to this standard work: Ure's Dictionary is a well-known book, now more than ever useful and valuable to all classes.——The Board of Works for Hackney district have issued, in a printed form, "A General Report on the Works executed by the Board. By James Lovegrove, Assoc. Inst., C.E., Surveyor to the Board." From this document it appears that, since 1856, 14,596*l.* have been expended upon sewers for the district, calculated to benefit 3,418 houses, and an area of 588 acres. Ten miles and a half of sewers of various sizes have been executed. The average cost has been 5s. 3¼d. per foot. Of new houses, 337 have been erected, and 815 drained, at a private cost of 5,185*l.* Gravel-paths about Hackney are being paved, and several drinking-fountains have been erected. Many other useful works have been, and are being, carried out.——A little twopenny treatise on "The Art of Swimming, for Beginners, by James Bennett, M.D., LL.D." (Lea, Warwick-lane), contains some useful and curious information, thus given almost gratis, by an experienced swimmer. In a nation who "go down to the sea in ships," as we do, swimming ought to be as universal an accomplishment as it is in the Sandwich Islands, where the human species seems to be amphibious, or semi-fish semi-flesh in its nature. The little treatise under notice will, as far as possible, we dare say, obviate the objection of the cautious gentleman who would not trust his precious corporation in the water till he learnt to swim; but learners are to be advised to take their lessons with, rather than without, "the fluid element."

Miscellanea.

PAINTERS' COMPANY.—EXHIBITION OF SPECIMENS OF DECORATIVE ART.—The successful competitors—viz., Messrs. Kershaw, Simkin, Edmett, and M'Douall—were, at a full court on Wednesday, the 4th inst., presented with the freedom of the company and certificates of merit for specimens of decorations in Arabesque, marbling, graining, and writing. 876 persons of all classes have visited this exhibition during the month it has been open.

REMUNERATION OF THE ESSEX COUNTY SURVEYOR.—The committee appointed, at the Essex quarter sessions, to consider the principle upon which the county surveyor should be remunerated in future for works exceeding 1,500*l.*, reported that, having referred to the order of court containing the appointment of the county surveyor, and the terms of his remuneration, they are of opinion that the exception extends to all new works, alterations, additions, or improvements exceeding in amount the sum of 1,500*l.* for any one such, and not merely to any excess of expenditure in such cases over that sum. The committee recommended that such remuneration should be according to the usual rate of professional charges, but that no extra charge should be made for travelling or other incidental expenses. Capt. Budworth said, in the committee they moved the usual sum of 5 per cent., but it was thought there might be larger works in which the 5 per cent. would be more than adequate, or there might be matters on the other side with which the Court would no doubt deal liberally, but judiciously. Mr. J. O. Parker said they did not think of anything over 5 per cent. It was stated that anything over that would not be professional. The report was agreed to.

THE PROPOSED LEEDS CORN EXCHANGE.—Fifteen sets of plans for the proposed new Corn Exchange have been sent in. They were opened by the committee, and ordered to be placed in the Civil Court.

FALL OF A CEILING.—Mr. John Cail, optician, Grey-street, Newcastle, was exposed to a considerable loss on Saturday last, by the fall of his shop ceiling. About one-half of the entire ceiling fell down, destroying plate-glass cases and their contents to the value of not far from 100*l.* In this building age, one would have expected the art of ceiling-making to have arrived at such perfection as to have prevented an accident like this.—*Gateshead Observer.*

INAUGURATION OF BANBURY (NEW) CROSS.—The Foresters' Court of the district have inaugurated the new cross at Banbury. The foresters rode to the cross, in grand parade, preceded by a lady, but not on "cock-horse," nor probably had the lady "bells on her toes," though she may have had "rings on her fingers." An address suitable to the occasion was duly delivered by one of the white lady's attendant foresters. The cavalcade included Robin Hood, Friar Tuck, and other characters with which modern poetry still keeps alive the memory of the olden times of merrie Sherwood. Old English sports in the field closed the festival.

ANTIQUITY OF THE CHURCH AT DITTON.—Extensive repairs have lately been going on in this venerable church. In cutting away some portion of the old building for the formation of a new vestry-room, an arch was discovered constructed of the Tuphos or Tupha stone—the same as that of which a considerable portion of the ancient Pharos at Dover Castle was built. The *Maidstone Journal* says,—Mr. Knocker, in a lecture on the antiquities of Dover, alludes to this stone as one which he thinks "is found nowhere in this part of Europe, save on the banks of the Rhine and the Tiber;" though it is said to have been used by the Greeks, Romans, and Egyptians as a stalactical concretion.

LEICESTER ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.—At the last meeting of this society various objects of archæological interest were exhibited, and Mr. Gresley read a paper upon "Newstead." The secretary distributed to the members present copies of a paper upon armorial windows erected in the reign of Henry VI., in Woodhouse Chapel, Charnwood Forest, read last year by Mr. J. G. Nichols, F.S.A., at the annual meeting of the society at Loughborough. It was resolved that a special meeting should be called to make arrangements for an evening *soirée* of the society to be held shortly in Leicester, and that the annual meeting of the society for the transaction of business should be held at the close of the year; these arrangements to be independent of the contemplated excursion and meeting at Rugby.

PUBLIC WORKS AT ADELAIDE.—The *South-Australian Register*, in its last summary for England, says,—"With respect to the Colonial Architect's department, in which extensive changes have recently been made, it appears that a sum of 25,290*l.* was laid out under the control of that officer during the last half-year. The staff of that office has been subject to considerable reductions of late, the post of Assistant Colonial Architect having been left vacant from the 15th of November last. It is now understood that the office is to be annihilated. A statement indicating the details of the expenditure on various public works during the half-year last past shows that among the principal works in progress or completed are the South Australian Institute, Dry Creek Labour Prison, New Registry Offices, New Treasury Offices, Observatory and Observer's house, Additions to Lunatic Asylum, Casualty Hospital, Gaol at Robe Town, New Adelaide Hospital, New Custom-house, Police-station, and Court-house, Port Adelaide; Custom-house, Court-house, and Post-Office, Port Augusta; and various other court-houses and police-stations. The total amount expended in public works during the half-year under notice was 234,754*l.*, viz.:—

By Colonial Architect	£25,290
By Superintendent of Telegraphs, in constructing new lines	7,474
By Railway Engineer, for construction and extension	125,653
Waterworks expenditure	26,811
By Central Board of Main Roads, inclusive of surplus labour expenditure	45,416
By Harbour Trust	3,360
Clearing channel of River Murray (say cost relating to half-year)	750
	£234,754

In addition to this expenditure for the half-year, the sum expended on public works by Municipal Corporations and District Councils during the whole of 1859 was 43,637*l.* 14s. 1d.

THE PROJECTED PUBLIC ROAD THROUGH HYDE-PARK.—We regret to learn that the Chief Commissioner of Works has no intention at present of doing anything towards opening the much-required direct communication between the districts north and south of Hyde-park.

THE STOCKPORT SURVEYORSHIP.—Mr. John Whittaker, jun., of Heaton Norris, has been appointed to the office of surveyor to the Stockport town council, by a majority of twenty-six to ten votes. There were nine candidates.

A STEAM ELEPHANT.—One of Taylor's patent traction engines called "steam elephants," built at the Britannia Works, Birkenhead, for the Dutch Government, for use in the docks at Flushing, when tested, it is said, drew a load of 14 tons 13 cwt., going up and down hill, turning corners, &c., with ease.

THE GREAT EASTERN.—Intelligence from New York announces the arrival in that city of the *Great Eastern* on June 28; that is, eleven days after her departure from Southampton. A great crowd had, of course, assembled, to give her an enthusiastic reception. Her average rate of speed was something less than 300 miles a day: the greatest speed she attained was 14½ knots an hour—considerably short of what was anticipated.

ELECTRO-PHOTO-TELEGRAPHY.—A Florentine abbé now in Paris has, it is reported, made a wonderful discovery in connection with photography and electricity. He is able, in sending a telegraphic message, to produce, at the opposite end of the wire, a *fac-simile* of the writing that the message has been sent in. The idea of an autographic telegraph, however, is not new, although the connection of photography (if it really be such as alleged) with electric telegraphy does seem to be a novelty.

GAS.—The Sunderland Gas Company have resolved to extend their works, and a piece of ground, ten acres in extent, has been purchased near the "Blue House," Hendon, whereon a new gas-work is shortly to be erected, having a gasometer 123 feet in diameter, and 28 feet in depth.——At the annual meeting of the Brechin Gas-Light Company it was resolved that the rent of consumers' meters (1,900) be lowered from 2s. 6d. to 2s. per annum, and a dividend, at the rate of 9½ per cent., was declared, free of income-tax, being a rise of a half per cent. on the previous dividend.——The Alyth Gas Company, says the *Montrose Review*, have resolved to divide 6 per cent., and carry to the sinking fund 15*l.* out of their total income of 400*l.* Great disappointment is felt by the community that no reduction in the price of gas is to take place. Here it is 10s. per thousand feet, being the highest price paid in any town in Scotland.

LENDING MONEY TO WORKMEN.—IMPORTANT TO MASTERS.—At the Wolverhampton petty sessions, a journeyman locksmith, late in the employ of Mr. Benjamin Walters, master locksmith, was summoned by Mr. Walters for leaving his employment without having completed his agreement, by which he bound himself to serve for two years, the complainant at the same time lending him 4*l.* 17s., to be repaid in 1s. instalments weekly; and the agreement stating that, "in case the whole of the said sum of 4*l.* 17s. shall not be repaid by me, or I shall be indebted to the said Benjamin Walters in any further sum of money, at the expiration of the within-mentioned term, then I do hereby agree not to quit his service until I have fully paid all such sum or sums of money, and give to the said Benjamin Walters fourteen days' notice in writing, before leaving his service." Complainant deposed that the defendant had given the required notice to leave, but inasmuch as he was indebted to him (complainant), in the sum of 5*l.* 4s. 6d., he could not legally leave his work. The magistrates declined to convict, as the man had served the specific time for which he had agreed with the complainant, who wanted the magistrates to do that which a small debts court would not do, viz., order imprisonment in the event of non-payment. The complainant would then have lent money with an advantage on his side that no usurer in the kingdom could secure. Having lent the man the money, the complainant could have stopped it from his wages without consulting him. With such an agreement in his possession, it would be quite possible for an employer to lend a workman money, and keep him in perpetual bondage. Mr. Walters said that every lockmaker in Wolverhampton made such agreements, that convictions were constantly taking place upon them, and that he had himself taken proceedings successfully against twenty-five of his men at different times, under similar circumstances. The magistrates said complainant might appeal, but the case must be dismissed.

BUILDERS' DINNERS.—Sir: The workmen in the employ of Mr. John Jay had their annual excursion, on Saturday last, to Rosherville Gardens, and about 220 sat down to a substantial and satisfactory dinner. Mr. Jay contributed 35*l.*, and several of the architects and merchants subscribed handsomely. Surely if this were more generally adopted in the building firms, it would tend to create a better feeling between employer and employed.—ONE OF THE COMMITTEE.

KNIGHTHOOD OF AN ENGLISH ENGINEER.—The *Manchester Advertiser* announces that a former fellow citizen, Mr. W. G. Ginty, has had conferred upon him, by the Emperor of the Brazils, the rank of a Knight or Chevalier of the Imperial Order of the Rose. Mr. Ginty is engineer-in-chief of the City Canal and other important public works of Rio de Janeiro.

THE TRAFFIC RETURNS OF RAILWAYS, in the United Kingdom, for the week ending June 23, amounted to 539,230*l.*; and for the corresponding week of last year to 502,440*l.*; showing an increase of 36,790*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 237,220*l.*; and for the corresponding period of 1859 to 224,821*l.*; showing an increase of 12,399*l.*

SMALL-POX AND VACCINATION HOSPITAL.—It has been resolved that in consequence of the frequent return of epidemics of small-pox, and of the crowded state of the hospital, steps should be forthwith taken to provide a separate building or wards to receive the more urgent cases, and thus afford additional accommodation to the public and security to the patients. In accordance with this resolution applications for plans and estimates were made, and eventually a tender accepted from Mr. John Perry, for building two additional wards to the hospital for the sum of 3,358*l.*, and these wards are to be proceeded with at once.

THE CONSERVATIVE LAND SOCIETY.—At the thirty-first quarterly general meeting of the members, held on Tuesday, the 3rd inst., Sir Lawrence Palke, bart., in the chair, it appeared that the society has acquired its forty-first estate by a second purchase in Herts, close to the Hertford Terminus, which estate, in twenty-six lots, will be offered to the members on the 18th inst. On the same day will likewise be allotted twenty-six plots, being the first portion of the Roehampton Park estate. The sites selected are in the south-west part of the estate, partaking of both the Richmond Park and Putney Heath boundaries, and the finely-wooded scenery, and the immunity of being built against, which the Royal Park and Putney Heath both secure. The plots range in price from 102*l.* 7d. to 696*l.* 13s. 6d. each; the quantities varying from 36¾ perches to 1a. 1r. 3p.

A NEW STONE-CUTTING MACHINE.—We were not a little surprised the other night at seeing a small machine planned by Mr. D. Ross, foreman to Mr. Craig, constructed and erected upon the green island along the side of the river for the purpose of cutting pavement, and by which Mr. Ross says a man and boy will accomplish the labour of four men who cut by the ordinary method, at the same time saving a great deal of unnecessary labour. The machine is set in motion by means of a large fly-wheel which is driven about by manual labour. A piston is attached to a crank fixed to the wheel, and extends to an upright bar in the frame which gives it motion, in this way bringing the whole lever power to bear on the movements. The affair is only in a temporary condition merely to try its practical utility, and if successful will be adopted. We observe that "D. Ross, Patentee," was printed upon the machine.—*John O'Groat's Journal.*

REFORMATORY SCHOOLS.—The annual report of Mr. Sydney Turner, inspector of reformatories in Great Britain, states that the number of boys in these institutions at the end of 1859 was 2,636, and of girls 640; but another school for girls is urgently required. During the year 108 of the inmates emigrated, 57 were sent to sea, 143 were apprenticed or placed in service by the managers, 212 were allowed to return to their friends, or were placed in service by them, 102 absconded, and were not recovered. Of those who enlist or go to sea, a large proportion turn out well. Of the whole number (637) of boys and girls discharged from English reformatories up to the end of 1858, above half (333) are known to be living honestly, and maintaining a good character. The total expenditure for the year was 72,893*l.*, of which the Government paid for maintenance 51,681*l.*, the parents 1,604*l.*, and 16,169*l.* was raised by voluntary contributions. Mr. Turner speaks very favourably of the condition of the reformatories.

ASSOCIATION OF FOREMEN ENGINEERS.—The usual monthly meeting of the above society took place at their rooms, St. Swithin's-lane, City, on the 7th instant; Mr. J. Newton, of the Mint, in the chair. After the transaction of the routine business. Mr. James Robertson, iron merchant, of Bankside, read a paper on the Development of the Iron Trade.

FRIEND'S PANORAMA OF CANADA, ST. JAMES'S HALL.—The variety of talent exhibited by Mr. Washington Friend in his entertainment, "Two Hours in Canada and the United States," enforces recognition. The art may not be very high, the acquirements not altogether complete; but when a gentleman paints you a panorama, describes it very forcibly, sings you some songs, plays the pianoforte, the violin, the banjo, and the harp, and, moreover, opens your eyes to the extent and importance of one of our most important dependencies—just now, too, invested with an extra interest,—you must be very unreasonable if you are not amused and gratified. Speaking for ourselves, we certainly were both, and were glad to see the room well filled, as a reward for the skill, tact, and energy displayed.

TENDERS

For Wolhampton Church, Berks. Mr. J. Johnson, architect:—

Weller	£2,600	0	0
Dove, Brothers	1,785	0	0
Hollis	1,520	0	0

For new roof and restorations to Brandon Parva Church, Norfolk. Mr. John Daymond Ellis, architect, Norwich:—

Barrell	£479	0	0
Woodbine	456	0	0
Skipper	424	8	0
Miller	412	0	0
Boardman (accepted)	385	14	6

For new schools and class-rooms, Princess-street, Norwich, for the Rev. John Alexander. Mr. John Daymond Ellis, architect, Norwich:—

Lacey	£683	10	0
Brooks (accepted)	659	0	0

For additions and alterations to the Small Pox and Vaccination Hospital, Upper Holloway. Messrs. Williams & Smith, architects. Quantities supplied by Mr. James Dudley:—

Patman & Fotheringham	£3,845	0	0
Foster	3,579	0	0
Turner & Sons	3,439	0	0
Ashby & Horner	3,400	0	0
Perry (accepted)	3,358	0	0

For alterations and additions to St. Andrew's Schools, Lambeth:—

Sawkins & Vokins	£205	10	0
Chutter	193	0	0
Jeffs, Brothers (accepted)	183	0	0

For Congregational Chapel, Moreton-in-Marsh, Gloucestershire. Messrs. Poulton & Woodman, Reading, architects:—

Wood & Son	£1,128	0	0
Young & Co.	1,050	0	0
Turner	930	6	11
Sharpe	890	0	0
Gore (accepted)	840	0	0

N.B. All the above tenders include, in addition, the old materials of the present chapel.

For building ten houses for Mr. Marfleet, Carshalton, Surrey. Mr. E. C. Wade, architect:—

Wilson	£2,464	0	0
Downs	2,120	0	0
Fowler	1,934	0	0
Smith	1,498	0	0

For fittings and finishings to 77, Aldgate-street, for the Worshipfull Company of Tallowchandlers. Mr. William Snooke, architect:—

Rider	£494	0	0
Piper	493	0	0
Mare	487	0	0
Colls	475	0	0
Ashby & Horner	470	0	0
Wells	452	0	0
Coleman	449	0	0

For storage reservoir for the Torquay Water-works:—

Wilcocks	£4,050	0	0
Royds & Wittle	3,490	15	0

Stapleford Abbotts Church.—We are asked to insert the following detailed and corrected list of Tenders:—

	For rebuilding Church & Chancel complete.	For Hot Water Apparatus.	Reduction for repairing and restoring Chancel, instead of rebuilding.	Reduction for Pitch Pine instead of Wainscot.
	£	£	£	£
Brown & Robinson	2,920	148	139	200
Beever	2,496	199	220	274
Savill	2,471	142	217	72
Dove, Brothers	2,395	105	130	195
Spanc	2,282	157	147	30
Hammond ..	2,275	148	227	60

For Shoreham and Mid-Sussex Line Stations. Mr. R. Jacomb Hood, engineer. Quantities supplied by Messrs. Pearson & Doughney, and Mr. William Trego:—

Fabian	£11,040	0	0
Hack & Son	10,626	0	0
Downs	10,544	0	0
Longmire & Bruce	10,344	0	0
Bushby	10,182	0	0
McLennan & Bird	9,666	0	0
Todd	9,300	0	0
Rudkin, junior	9,002	0	0
Reynolds	8,853	0	0
Pickford & Co.	8,770	0	0
Evans, Brothers	8,743	0	0
Dales (accepted)	8,463	0	0

For house at Whitbourne, Herefordshire, for Mr. F. Bickerton Evans. Mr. E. W. Elmslie, architect. Quantities supplied by Messrs. Batstone & Hunt:—

Mansfield & Sons	£25,745	0	0
Gascoyne	25,227	0	0
Lucas, Brothers	24,960	0	0
Myers	24,753	0	0
McCann & Everal	23,750	0	0
Barnsley & Sons	23,300	0	0
Wood & Son	22,740	0	0
Broadbent (accepted)	21,500	0	0

For house at Wanstead, Essex, for Mr. L. Hart. Mr. G. R. Noble, architect:—

Pritchard	£3,000	0	0
Perry	2,995	0	0
Dove, Brothers	2,965	0	0
Hill & Son	2,947	10	0
Hill, W.	2,908	0	0
Conder	2,899	0	0
Hedges	2,856	0	0

For additions and alterations to a house near Chertsey. Mr. W. Walker, architect. Quantities by Messrs. Lansdown, Bloomsbury:—

	Including Lodge.		
Oades	£8,880	0	0
Hockey	7,969	0	0
Macey	7,787	0	0
Mansford	7,778	0	0
Wilson	7,380	0	0
Myers	7,280	0	0
Nicholson	7,238	0	0

For repairs and alterations to the Bedford Arms public-house, Commercial-road, for Mr. Masters:—

Lidbetter	£499	0	0
Brake	359	0	0
Fox	315	0	0
Williams, Brothers	305	0	0
Hodges	227	0	0

For new galleries, &c., to the Congregational Church, Kentish-town. Mr. E. M. Habershon, architect:—

Batterbury	£813	0	0
Patman & Fotheringham	720	0	0
Williams, Brothers	685	0	0
Lambell	665	0	0
McLennan & Bird	644	0	0
Porter	637	0	0
Hall	616	0	0

Trallong Church.—Sir: Observing in your last impression the list of Tenders for "Trallong Church Restoration" from a local paper, and finding them not exactly correct, we have to state there were only the following three Tenders given in, and not four, as represented:—

	With Hauling.			Without Hauling.		
Griffiths & Son..	£500	0	0	£480	0	0
Williams & Son	450	0	0	400	0	0
W. Williams (acc.)	402	14	6	382	14	6

We had in our estimate (as stated distinctly in writing) included the whole of the chancel and vestry roofs, of new framed oak. The other contractors did not; and this, of course, made a great difference in the estimates. Mr. William Williams (the accepted tender) subsequently was requested by the committee to furnish an estimate for the work above stated, and which said tender now amounts to 475*l.* without hauling, and being within 5*l.* of our original tender, which included the whole. Mr. Williams has just told us that the committee has also given him the hauling in addition to the above (last week), as at this time of the year it is very inconvenient for the farmers to spare their teams for that purpose.

GRIFFITHS & SON.

TO CORRESPONDENTS.

Portsea Fountain.—Sir: As there are five or more "Mr. Hoods, London," will you oblige me by stating in your next that the drinking fountain, given by Mr. Faulkner, Portsea, was erected by "William Hood, Upper Thames-street, London"?—W. H.

M. (better entrust the bust to some person used to moulding. A gelatine mould would, probably, be the best).—E. M. C.—H. W.—Another of the Unsuccessful (we know nothing of the decision by the Hearts of Oak Benefit Society. We have received several complaining letters).—H. T. B. (we do not know. One architect of that name, Mr. John Blake, of Oswestry, died, we regret to say, a few months ago).—M. B. I. B. A.—E. R. (yes).—Old London (yes: with thanks).—J. H. R.—A Competitor.—J. N. P.—W. R.—A Practical Man.—T. D.—F. W. H.—G. B. A.—J. S.—C. S. B. (Transactions of Yorkshire Agricultural Society).—R. K. P.—H. L.—F. J. N.—E. W. (it could not be legally removed).—J. N.—G. S.—Poor Man (it depends on local circumstances. Inquire on the spot).—H. B.—H. R.—J. R. C.—Subscriber (we are unable to assist).

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